OMB No. 2040-0042 Approval Expires 12/31/2018

EPA

United States Environmental Protection Agency
Washington, DC 20460

Completion Form For Injection Wells

Administrative Information

1. Permittee: Florence Copper Inc.

Address *(Permanent Mailing Address) (Street, City, and ZIP Code)*: 1575 W Hunt Hwy, Florence, AZ 85132

2. Operator: Florence Copper Inc.

Address *(Street, City, State and ZIP Code)*: 1575 W Hunt Hwy, Florence, AZ 85132

3. Facility Name: Florence Copper Inc.

Telephone Number: (520) 374-3984

Address *(Street, City, State and ZIP Code)*: 1575 W Hunt Hwy, Florence, AZ 85132

4. Surface Location Description of Injection Well(s)

State: Arizona

County: Pinal

Surface Location Description

SW 1/4 of SW 1/4 of NE 1/4 of SW 1/4 of Section 28 Township 4S Range 9E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location 1150 ft. frm (N/S) N Line of quarter section and 1120 ft. from (E/W) E Line of quarter section.

Well Activity

- [ ] Class I
- [ ] Class II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [x] Class III
- [ ] Other

Well Status

- [x] Operating
- [ ] Modification/Conversion
- [ ] Proposed

Type of Permit

- [ ] Individual
- [x] Area : Number of Wells 33

Lease Number: NA

Well Number: R-06

Submit with this Completion Form the attachments listed in Attachments for Completion Form.

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Ian Ream, Senior Hydrogeologist		9-12-2018

Attachments to be submitted with the Completion report:

I. Geologic Information

1. Lithology and Stratigraphy

A. Provide a geologic description of the rock units penetrated by name, age, depth, thickness, and lithology of each rock unit penetrated.

B. Provide a description of the injection unit.

(1) Name
(2) Depth (drilled)
(3) Thickness
(4) Formation fluid pressure
(5) Age of unit
(6) Porosity (avg.)
(7) Permeability
(8) Bottom hole temperature
(9) Lithology
(10) Bottom hold pressure
(11) Fracture pressure

C. Provide chemical characteristics of formation fluid (attach chemical analysis).

D. Provide a description of freshwater aquifers.

(1) Depth to base of fresh water (less than 10,000 mg/l TDS).
(2) Provide a geologic description of aquifer units with name, age, depth, thickness, lithology, and average total dissolved solids.

II. Well Design and Construction

1. Provide data on surface, intermediate, and long string casing and tubing. Data must include material, size, weight, grade, and depth set.

2. Provide data on the well cement, such as type/class, additives, amount, and method of emplacement.

3. Provide packer data on the packer (if used) such as type, name and model, setting depth, and type of annular fluid used.

4. Provide data on centralizers to include number, type and depth.

5. Provide data on bottom hole completions.

6. Provide data on well stimulation used.

III. Description of Surface Equipment

1. Provide data and a sketch of holding tanks, flow lines, filters, and injection pump.

IV. Monitoring Systems

1. Provide data on recording and nonrecording injection pressure gauges, casing-tubing annulus pressure gauges, injection rate meters, temperature meters, and other meters or gauges.

2. Provide data on constructed monitor wells such as location, depth, casing diameter, method of cementing, etc.

V. Logging and Testing Results

Provide a descriptive report interpreting the results of geophysical logs and other tests. Include a description and data on deviation checks run during drilling.

VI. Provide an as-built diagrammatic sketch of the injection well(s) showing casing, cement, tubing, packer, etc., with proper setting depths. The sketch should include well head and gauges.

VII. Provide data demonstrating mechanical integrity pursuant to 40 CFR 146.08.

VIII. Report on the compatibility of injected wastes with fluids and minerals in both the injection zone and the confining zone.

IX. Report the status of corrective action on defective wells in the area of review.

X. Include the anticipated maximum pressure and flow rate at which injection will operate.

HALEY & ALDRICH, INC.
One Arizona Center
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TECHNICAL MEMORANDUM

17 September 2018
File No. 129687-010

TO: Florence Copper Inc.
Ian Ream, Senior Hydrogeologist

FROM: Haley & Aldrich, Inc.
Lauren Candreva, R.G.

Subject: Drilling, Installation, and Integrity Testing Summary
PTF Recovery Well R-06
Florence Copper Inc., Florence, Arizona

This document summarizes the drilling, installation, and testing of Production Test Facility (PTF) recovery well R-06 for Florence Copper Inc. (Florence Copper) in Florence, Arizona, including the equipment used to perform the work, completion, and the results of well testing activities. Separate well completion reports have been created for each PTF well.

The Arizona Department of Water Resources Registry ID for well R-06 is 55-227704; the Well Registry Report is included in Appendix A. Well R-06 is located in the southwest quarter of the northeast quarter of the southwest quarter of Section 28 of Township 4 north, Range 9 East of the Gila and Salt River Baseline and Meridian (D(4-9)28CAC). Well R-06 is located within the Underground Injection Control (UIC) Permitted Area of Review (AOR) for UIC Permit R9UIC-AZ3-FY11-1 and was completed as a Class III recovery well for the PTF (Figure 1).

Florence Copper contracted Hydro Resources, Inc. (Hydro Resources) to drill the borehole for the overburden casing and to install the overburden casing. Florene Copper contracted Cascade Drilling LLC (Cascade) to drill, install, and test recovery well R-06. All work was completed in accordance with *Well Specification: Drilling, Installation, and Testing of Class III Injection and Recovery Wells, Production Test Facility, Florence, Arizona* (Haley & Aldrich, Inc. [Haley & Aldrich], 2017). A Midway 3500 drilling rig was used for the overburden casing and a Speedstar 50k drilling rig was used for the lower borehole drilling and well construction activities. Haley & Aldrich provided oversight of drilling activities, geophysical logging, well installation, and testing. All reported depths are in feet below ground surface unless otherwise noted.

I. Geologic Information

1. Lithology and Stratigraphy

   A. Geology of Penetrated Units

The geology penetrated during the drilling of the Class III well R-06 is summarized in the table below and a lithologic log is included in Appendix B.

Lithologic Unit Name	Depth to Bottom of Unit (feet)	Thickness of Unit (feet)	Lithology and Age of Unit
Upper Basin Fill Unit (UBFU)	280	280	Alluvium; Quaternary to Tertiary
Middle Fine-Grained Unit (MFGU)	301	21	Alluvium; Tertiary
Lower Basin Fill Unit (LBFU)	380	79	Alluvium; Tertiary to Cretaceous
Bedrock Oxide Unit (Oxide)	Not encountered	>830	Igneous porphyry – Precambrian

   B. Description of Injection Unit

Name	Bedrock Oxide Unit
Depth Drilled	1,210 feet
Thickness	>830 feet
Formation Fluid Pressure	Atmospheric plus head of freshwater – no additional formation pressure
Age of Unit	Precambrian with intrusions of Precambrian to Tertiary rocks
Porosity[1]	Approximately 6.5 to 8%
Permeability	Hydraulic Conductivity = 0.56 feet per day
Bottom Hole Temperature	25.9 degrees Celsius
Lithology	Igneous porphyry – quartz monzonite, granodiorite with diabase and andesite dykes (detailed log included in Appendix B)
Bottom Hole Pressure	Approximately 430 pounds per square inch (PSI) (pressure exerted by the column of freshwater with no additional contribution from formation pressure)
Fracture Pressure	0.65 PSI per foot

[1] Porosity values for the bedrock oxide unit are approximate values from calculated neutron porosity values from injection well borehole surveys.

C. Chemical Characteristics of Formation Fluid

The chemical characteristics of the formation fluid in the injection zone are summarized below and are the results of the sampling of the center PTF wellfield, well R-09. The table below summarizes the primary chemical characteristics detected in a formation fluid sample collected on 23 April 2018; the complete analytical report is included in Appendix C.

Analyte	Result (mg/L)
Metals	
Aluminum	<0.08
Antimony	<0.005
Arsenic	0.0016
Barium	0.071
Beryllium	<0.0005
Cadmium	<0.00025
Calcium	140
Chromium	0.0051
Cobalt	<0.00025
Copper	0.011
Iron	<0.30
Lead	<0.0005
Magnesium	27
Manganese	0.002
Mercury	<0.001
Nickel	0.0033
Potassium	6.8
Selenium	<0.0025
Sodium	170
Thallium	<0.0005
Zinc	<0.04
Anions	
Bicarbonate	150
Chloride	310
Fluoride	<0.5
Nitrate	8.8
Sulfate	190
Field Parameters	
Total Dissolved Solids	1,000
pH	7.8
Radiochemicals	
Uranium	0.016
Notes: *mg/L = milligrams per liter*	

Sampling results for well R-06 are included in the *PTF Mine Block Ambient Groundwater Concentrations and Initial Discharge Characterization of the Underground Workings* (Brown and Caldwell, 2018).

D. Description of Freshwater Aquifers

1) The depth to the base of the freshwater aquifer is defined by the interface where deeper formation fluid exhibits a total dissolved solids (TDS) value of 10,000 milligrams per liter (mg/L). The depth of the 10,000 mg/L interface is deeper than all of the wells drilled at the site, and consequently, has not been defined.

2) The geologic description of the aquifer units is included below:

Aquifer Unit Name	Age	Depth (feet)	Thickness (feet)	Lithology	Average Total Dissolved Solids[1] (mg/L)
UBFU	Quaternary/Tertiary	0 to 280	280	Alluvium	914
LBFU	Tertiary	301 to 380	78	Alluvium	754

Notes:
[1] Average TDS values calculated from UBFU and LBFU monitoring well ambient monitoring results near the PTF.

II. Well Design and Construction

1. Well R-06 Casing Installed:

Casing	Material	Diameter (inches)	Weight (pounds per foot)	Depth (feet)	Borehole Diameter (inches)	Drilling Method
Surface	Mild Steel	24 O.D. 23¼ I.D.	94.71	0 to 40	30	Solid-stem auger
Overburden (intermediate)	Mild Steel – bottom 40 feet poly coated	14 O.D. 13⅜ I.D.	47.36	0 to 500	20	Reverse flooded rotary
Well Casing	Fiberglass Reinforced Plastic	5.47 O.D. 4.74 I.D.	5.40	-1.45 to 519	Inside overburden casing to 500 feet; 12¼	Inside overburden casing/conventional mud rotary
Screen	PVC SCH80 with 0.080-inch wide slots	5.56 O.D. 4.81 I.D.	4.08	519 to 648 660 to 886 900 to 1,200	12¼	Conventional mud rotary
Blank Intervals	PVC SCH80	5.56 O.D. 4.81 I.D.	14.75	641 to 661 881 to 901	12¼	Conventional mud rotary
Liner	PVC SCH80	3.5 O.D. 2.9 I.D.	1.94	570 to 1,090	Inside 5-inch PVC	Inside well casing

Notes:
I.D. = inside diameter
O.D. = outside diameter
PVC = polyvinyl chloride
SCH = Schedule

2. Well Cement

Cement Interval	Cement Type	Additives	Amount Installed (cubic yards)	Method of Emplacement
Surface Casing	Type V Neat 21 sack slurry	None	4	Submerged tremie
Overburden Casing	Type V Neat 21 sack slurry	None	27.7	Displacement - installed through drillable grout shoe with one-way stab-in valve, welded to the bottom of the casing
Well Casing	Type V Neat 21 sack slurry	None	15.8	Submerged Tremie

Field forms documenting pipe tallies, annular materials, and cement tickets are included in Appendix D.

3. Annular Packers

No annular packers were used during construction of well R-06.

4. Centralizers

Casing	Centralizer Type	Number and Spacing
Overburden	Mild Steel – welded	13 installed – every 40 feet
Well – FRP and PVC	Stainless steel – Heavy Duty	30 installed – every 40 feet
Notes: *FRP = fiberglass reinforced plastic* *PVC = polyvinyl chloride*		

5. Bottom Hole Completion

There is no bottom hole completion as this is not an oil/gas well. The well was completed at the bottom with a stainless-steel endcap of the same diameter as the well screen.

6. Well Stimulation

No well stimulation was used during the drilling and construction of well R-06.

III. Description of Surface Equipment

1. Surface Equipment

   Well R-06 is a recovery well and has been equipped with a submersible pump. The 2-inch diameter discharge pipe extends from the well head and into the manifold that conveys the fluid directly to the solvent extraction/electrowinning plant on-site. A diagram of the wellhead is included as Figure 2.

IV. Monitoring Systems

1. Well Monitoring Equipment

Equipment Type	Location	Type	Purpose
Annular Pressure Transducer	Well Annulus – 635 feet bgs	Recording	Monitor water column/pressure
Pressure Transducers	Well Casing – approx. 425 feet bgs	Recording	Monitor water column/pressure
Flow Meter	Wellhead	Recording	Monitor extraction rate
Pressure Gauge	Wellhead	Nonrecording	Monitor wellhead pressure

2. Monitoring Wells

   There are a total of 16 monitoring wells associated with the PTF: 7 point-of-compliance (POC) wells, 7 United States Environmental Protection Agency (USEPA) supplemental monitoring wells, and 2 operational monitoring wells. The POC wells are located outside the AOR and are not constructed as Class III wells. The supplemental monitoring and operational monitoring wells are located within the AOR and are constructed as Class III wells as required by the UIC Permit. The wells are summarized in the tables below by type.

POC Wells						
Well ID	**Location X/Y (State Plane NAD 83)**	**Depth (feet)**	**Well Nom. Diameter (inches)**	**Cementing Method**	**Screened Interval (feet)**	**Screened Lithologic Unit**
M14-GL	846750.23 746461.52	859	5 9/16 OD	Submerged tremie	778 to 838	LBFU
M15-GU	846697.17 746464.82	615	5 9/16 OD	Submerged tremie	554 to 594	LBFU
M22-O	846751.26 746514.47	1,140	5 9/16 OD to 528 feet; 4½ OD to 1,140 feet	Submerged tremie	932 to 1,130	Oxide

POC Wells						
Well ID	**Location X/Y (State Plane NAD 83)**	**Depth (feet)**	**Well Nom. Diameter (inches)**	**Cementing Method**	**Screened Interval (feet)**	**Screened Lithologic Unit**
M23-UBF	846688.13 746512.48	250	6 5/8 OD	Submerged tremie	210 to 250	UBFU
M52-UBF	851092.00 774178.00	274	5 9/16	Submerged tremie	198 to 273	UBFU
M54-LBF	847331.96 746682.61	630	5 9/16	Submerged tremie	310 to 629	LBFU
M54-O	847342.99 746702.36	1,199	5 9/16	Submerged tremie	668 to 1,198	Oxide
OD = outside diameter						

Supplemental Monitoring Wells						
Well ID	**Location X/Y (State Plane NAD 83)**	**Depth (feet)**	**Well Nom. Diameter (inches)**	**Cementing Method**	**Screened Interval (feet)**	**Screened Lithologic Unit**
M55-UBF	847541.46 746280.63	261	5	Submerged tremie	240 to 260	UBFU
M56-LBF	847518.70 746303.41	340	5	Submerged tremie	320 to 340	LBFU
M57-O	847378.37 746248.93	1,200	5	Submerged tremie	523 to 1,199	Oxide
M58-O	847672.23 746595.97	1,200	5	Submerged tremie	594 to 1,199	Oxide
M59-O	847934.95 746218.89	1,201	5	Submerged tremie	534 to 1,199	Oxide
M60-O	847599.37 745903.70	1,201	5	Submerged tremie	444 to 1,200	Oxide
M61-LBF	848184.46 746148.88	629	5	Submerged tremie	429 to 629	LBFU

Operational Monitoring Wells						
Well ID	**Location X/Y (State Plane NAD 83)**	**Depth (feet)**	**Well Nom. Diameter (inches)**	**Cementing Method**	**Screened Interval**	**Screened Lithologic Unit**
MW-01-LBF	847487.97 746360.54	444	5	Submerged tremie	330 to 440	LBFU
MW-01-O	847499.04 746369.31	1,200	5	Submerged tremie	500 to 1,200	Oxide

V. Logging and Testing Results

Borehole geophysical logging was conducted on well R-06 in four phases: 1) open-hole surveys in the 20-inch borehole prior to installation of the overburden casing; 2) cased-hole surveys in the 14-inch casing; 3) open-hole surveys in the 12.25-inch borehole prior to installation of the well casing and screen; and 4) cased-hole surveys in the completed well.

The open-hole geophysical surveys completed at well R-06 included:

- Spontaneous potential;
- Natural gamma;
- Electrical resistivity (short and long normal);
- Caliper with calculated volume;
- Temperature;
- Sonic; and
- Deviation.

The cased-hole geophysical surveys completed included:

- Cement bond log (overburden steel casing);
- Sonic (for cement bond with fiberglass reinforced plastic [FRP]);
- 4 Pi Density (for cement bond with FRP);
- Dual Density (for cement bond with FRP);
- Natural Gamma;
- Fluid Conductivity;
- Temperature;
- Gyroscopic Deviation Survey; and
- Video Survey.

Open-hole geophysical surveys were used to support identification of the lithologic contacts, to evaluate the condition of the borehole, and to evaluate the deviation of the borehole.

The primary logs used to evaluate lithologic contacts are natural gamma ray, short (16-inch) and long (64-inch) normal electrical resistance, and single-point resistance. The lithologic contacts for the Middle Fine-Grained Unit (MFGU) were selected based on the short and long resistance and the single-point resistance. All the resistivity logs decreased and stayed consistently low through the MFGU. This contact is generally a relatively sharp decrease in resistance at the top of the unit and a gradual increase in resistance below the bottom of the unit.

The contact between the Lower Basin Fill Unit (LBFU) and the bedrock was identified primarily with natural gamma and correlated with the resistance logs. There is a consistent increase in gamma at the contact between the LBFU and the bedrock that had been identified and documented at the site during exploration in the 1990s. For well R-06, the gamma is consistently at approximately 45 to 50 American Petroleum Institute (API) units throughout the Upper Basin Fill Unit (UBFU), a slight increase to approximately 55 to 60 API units in the MFGU and LBFU, and then begins to increase and have more variation at approximately 375 feet. A corresponding increase in resistivity occurs at 380 feet likely due to decreased water in the bedrock formation. After the increase at 375 feet, the natural gamma begins to vary more than it did in the alluvial units.

Cased-hole geophysical surveys were conducted to evaluate the cement seal and the casing-cement bond, to document baseline fluid temperature and conductivity, and to evaluate the plumbness of the well. The cement-bond is discussed in Section VII.

Copies of all the open-hole geophysical logs and cased-hole temperature, fluid conductivity, and natural gamma are included in Appendix E; a figure summarizing the open-hole logs used to evaluate geology is included as Figure 3. The cased-hole logs used to evaluate cement bond are included in Appendix F.

VI. Well As-Built Diagram

A diagram showing the wellhead completion for well R-06 is included as Figure 2. A well as-built diagram for well R-06 is included as Figure 4.

VII. Demonstration of Mechanical Integrity

A demonstration of Part I mechanical integrity of the well was completed using a standard annular pressure test (SAPT) in accordance with Part II.E.3.a.i.A of the UIC Permit. Mechanical integrity will be demonstrated every 2 years during operations and will be confirmed by daily injection pressure monitoring that will be conducted per the UIC Permit once the well is operational. Well R-06 SAPT is summarized below.

The SAPT was conducted by installing an inflatable straddle packer assembly in the well. The bottom packer was installed near the bottom of the FRP-cased portion of the well and the top packer was near the surface, the packers were inflated to form a seal against the casing. The bottom 5 feet of the packer drop pipe was perforated to allow for communication between the tubing and the annulus of the packer assembly. The drop pipe extended through the wellhead and a high pressure/low volume pump was attached to the drop pipe to pressurize the test interval. A valve on the drop pipe at the surface was used to isolate the test interval once the planned test pressure was achieved.

An In-Situ LevelTROLL® pressure transducer with a data logger was installed at the well head and was connected to the packer assembly annulus interval via a National Pipe Thread adapter. The LevelTROLL was used to monitor and record pressure inside the well during the SAPT. To conduct the SAPT, water

was pumped from a nearby well immediately prior to testing. Before the water was pumped into the test well, the water temperature was measured to ensure that it was similar to the ambient groundwater temperature of the test well to reduce the potential of differential temperature effects on the well casing. The SAPT for the Class III well was conducted by applying hydraulic pressure to well casing and shutting in pressure between the packer and wellhead assembly, monitoring the shut-in pressure for a 30-minute period, then measuring the volume of water returned from the well casing after the pressure was released.

On 17 April 2018, the packer was installed to approximately 502 feet and the SAPT was conducted successfully three times. The USEPA SAPT form, a table of the data, and a chart of the data is provided in Appendix G.

Part II mechanical integrity is demonstrated by the cementing records included in this report (in accordance with Part II.E.3.ii.C of the UIC Permit) and will be demonstrated during operations by annular conductivity monitoring on the observation and multi-level sampling wells (in accordance with Part II.E.3.a.ii.A of the UIC Permit).

Cemented Interval	Cement Type	Calculated Grout Volume (cubic yards)	Installed Grout Volume (cubic yards)
Surface Casing	Type V 21 sack neat cement slurry	2.6	4
Overburden Casing	Type V 21 sack neat cement slurry	22.1	27.7
Well Casing	Type V 21 sack neat cement slurry	14.9	15.8

On 27 November 2017, a cement bond log was run on the overburden casing. On 19 April 2018, a suite of logs was run over the entire length of the completed well to verify the grout seal. A summary of the logs completed to demonstrate cement bond are included in Appendix F.

The cement bond of the steel casing was evaluated by the geophysical contractor by calculating a bond index. The bond index was calculated to be an average of 90 percent at well R-06 over the cement grouted interval from 2 to 462 feet; this data is included on the summary log in Appendix G. A sonic log was also run in the steel casing and the sonic data indicate a consistent density in the steel cased cemented interval of well R-06, which supports the cement bond log data.

There is not a bond log tool designed to evaluate cement bond with FRP casing, so the cement interval with the FRP casing at well R-06 was evaluated using density logs. The logs conducted include sonic, focused density, and 4pi density logs. The measured density of the cased interval at well R-06 indicate there are no significant cement deficiencies from approximately 240 feet (static water Level) to 497 feet, and no significant cement deficiencies were noted in the 4pi density data collected from 15 to 497 feet. There were some very localized, relatively low density intervals identified in the density logs but they were insignificant, only extending 2 to 3 feet. A summary of the FRP cased data is included in the well completion summary for well R-06 in Appendix G.

VIII. Compatibility of Injected Waste

The Florence Copper Project is a Class III mineral extraction project and does not include the injection of any waste products of any kind. The injected fluid (lixiviant) is a carefully constituted in-situ copper recovery solution that will be recovered and recycled following injection.

The compatibility of the lixiviant was evaluated as part of the geochemical modeling completed by Florence Copper and summarized in the *Geochemical Evaluation to Forecast Composition of Process Solutions for In-Situ Copper Recovery Pilot Test Facility at Florence Copper, Florence Arizona* (Daniel B. Stephens Inc., 2014) which was included in Attachment H of the UIC Permit Application.

IX. Status of Corrective Action on Defective Wells in the Area of Review

There are not currently any defective wells in the AOR.

X. Maximum Pressures and Flow Rates for R-06

Maximum Operating Pressure	Maximum Flow (Extraction)
Atmospheric	No maximum extraction flow

This well is a recovery well used to extract solution; there is no maximum flow. However, in accordance with Section 2.2.1.1 of the Aquifer Protection Permit (APP), the recovery rate for the entire wellfield must always exceed the injection rate on a daily average, and in accordance with Part II.E.5.a of the UIC Permit the recovery rate will not fall below 110 percent of the injection rate on a daily average.

XI. Well Development

After the drill rig was demobilized from well R-06, Cascade attempted to run airline in the well to complete well development and encountered resistance. The airline was worked down slowly and the material returned at the surface consisted of mud and grout. The airline could not remove all the material. Cascade mobilized a drill rig to the site to drill inside the casing as summarized below in Section XIV. The development summarized in this section was completed after the grout was removed.

Well R-06 was developed by the airlift method, followed by pumping, and was completed by Cascade using a workover rig. To purge drilling fluids and solids, the well was air-lift developed at various depths ranging from 400 to 1,130 feet. During development, the airlift pump was turned on and off to surge the well. Airlift development started on 8 May 2018 and was conducted over period of 4 days. On 8 May 2018, approximately 33 gallons of chlorine was added to the well. The discharge was relatively clear and sand-free at the end of the airlift development period.

On 11 May 2018, a submersible pump was temporarily installed to approximately 520 feet to pump develop the well. Prior to pumping, the static water level was measured at approximately 243 feet. Pump development was conducted at approximately 60 gallons per minute (gpm) over a period of 2 days (11 through 12 May 2018), during which time the submersible pump was periodically turned off to surge the well. The discharge was sand-free and visually clear throughout the pump development period, with turbidity values of generally less than 10 Nephelometric Turbidity Units at the end of the development period. Well development forms are included in the Appendix H.

XII. Well Completion

A well video survey was conducted on 6 May 2018; the video log report is included as Appendix I. The video demonstrates the damage caused to the well screen while drilling out grout that intruded into the well screen. More detail is provided in Section XIV.

A gyroscopic survey was also conducted on the completed well on 27 March 2018; the results are included in Appendix I.

The surveyed location for well R-06 is:

Northing (feet)	Easting (feet)	Measuring Point Elevation (feet amsl)
746060.76	847623.95	1481.52
***Notes**:* *Northing and easting locations provided in State Plane North American Datum 1983, vertical location provided in North American Vertical Datum 1988.* *amsl – feet above mean sea level*		

XIII. Downhole Equipment

On 11 July 2018, the permanent pump equipment was installed in the well. The equipment installed included the following:

- Wilo 7.5 horsepower, 40-gpm pump – intake at 547 feet;
- 2-inch Schedule 120 threaded and coupled polyvinyl chloride column pipe with 316L stainless steel couplers from the pump to approximately 300 feet;
- 2-inch Schedule 40 threaded and coupled 316L stainless steel column pipe with 316L stainless steel couplers from approximately 240 feet to the wellhead;
- 316L braided stainless steel safety cable was installed from the pump to the wellhead;
- Two pressure transducers; and
- 1-inch nominal diameter sounding tube.

The type and depth of equipment installed in each well is not constrained by the UIC Permit or the APP. This information is provided in accordance with Section 2.7.4.3 of the APP. Operational consideration may require that the type and depth of equipment may need to be changed in response to conditions observed during operations.

XIV. Deviations from Planned Well Design

A workover rig was mobilized by Cascade to complete well development after the drill rig was demobilized from the well and the grout was given time to cure. A bailing tool was initially used to remove heavy mud from the well. The bailer encountered hard resistance at 563 feet and began bringing up small amounts of cement in the discharge water. Bailing efforts were continued to a depth of 593 feet before an eductor pipe was installed and airline to airlift the well. The eductor pipe also encountered resistance at 593 feet and airlifting continued to bring up small amounts of cement in the development water to a depth of 671 feet.

On 26 April 2018 Cascade mobilized the Speedstar 50k rig to the site and ran inside the well casing to drill through the hard fill obstruction using a 4.625 x 3.975-inch casing shoe bit. They advanced through the hard fill, with no additional grout identified past 720 feet. After the drill rod was removed from the well, a video survey was conducted that showed the well screen had been compromised during the clean-out process. The video showed grout in the filter pack in the zone where the screen had been compromised and the annulus was visible. In the upper portion of the well, the screen had also been torqued so that the perforations were twisted; the blank interval located between 640 and 660 feet had been dislodged upward by the process.

Two separate chemical rehabilitation treatments were conducted on 9 May and 9 July 2018 using Baroid Aqua-Clear Modified Granular Acid (MGA). On 9 May 2018, 500 pounds of Baroid Aqua-Clear MGA was mixed with approximately 500 gallons of fresh water and injected into the well through tremie pipe installed to 520 feet and chased with additional fresh water. After injecting the solution, the grout impacted zone of the well was swabbed using a 4-inch rubber swab attached to a wire line on the workover rig. The solution was left in place for a period of 12 hours before airlift development was resumed. On 9 July 2018, a second treatment using 500 pounds Baroid Aqua-Clear MGA was conducted by Empire Pump Inc. The chemical was directly injected into the well via tremie pipe installed to 500 feet and chased with fresh water. The solution was left in place for a period of 24 hours before additional pump development of the well was conducted. Records of the chemical rehabilitation and development are included in Appendix H.

After the chemical treatment in May, the eductor was run to the bottom of the well to airlift out the fill remaining. The eductor could not be advanced below approximately 1,100 feet. A 3-inch nominal diameter Schedule 80 polyvinyl chloride liner was installed in the well on 21 May 2018. The liner extends from 570 to 1,090 feet as shown on Figure 4, a pipe tally for the liner is included in Appendix D.

The pump in well R-06 was set higher than the other wells due to the diameter limitation of the liner installed. During development, the specific capacity of well R-06 was evaluated and the results indicated that the pumping capacity of the well is similar to other PTF wells. The annular transducer and the electrical resistivity tomography (ERT) sensors installed in the annulus of well R-06 during construction were damaged during the cleanout effort and are no longer functional. The ERT sensors will be replaced by sensors installed inside the liner. There is a transducer installed inside the well casing that will provide water levels. Because the wells are all constructed with the same design, the efficiency of the well can be evaluated based on data collected at the other PTF recovery wells.

The cased geophysics could not extend to the total depth of the well due to the diameter restriction; however, they were completed through the entire cemented interval.

XV. References

Brown and Caldwell, Inc., 2018. *PTF Mine Block Ambient Groundwater Concentrations and Initial Discharge Characterization of the Underground Workings*. Prepared for Florence Copper. September.

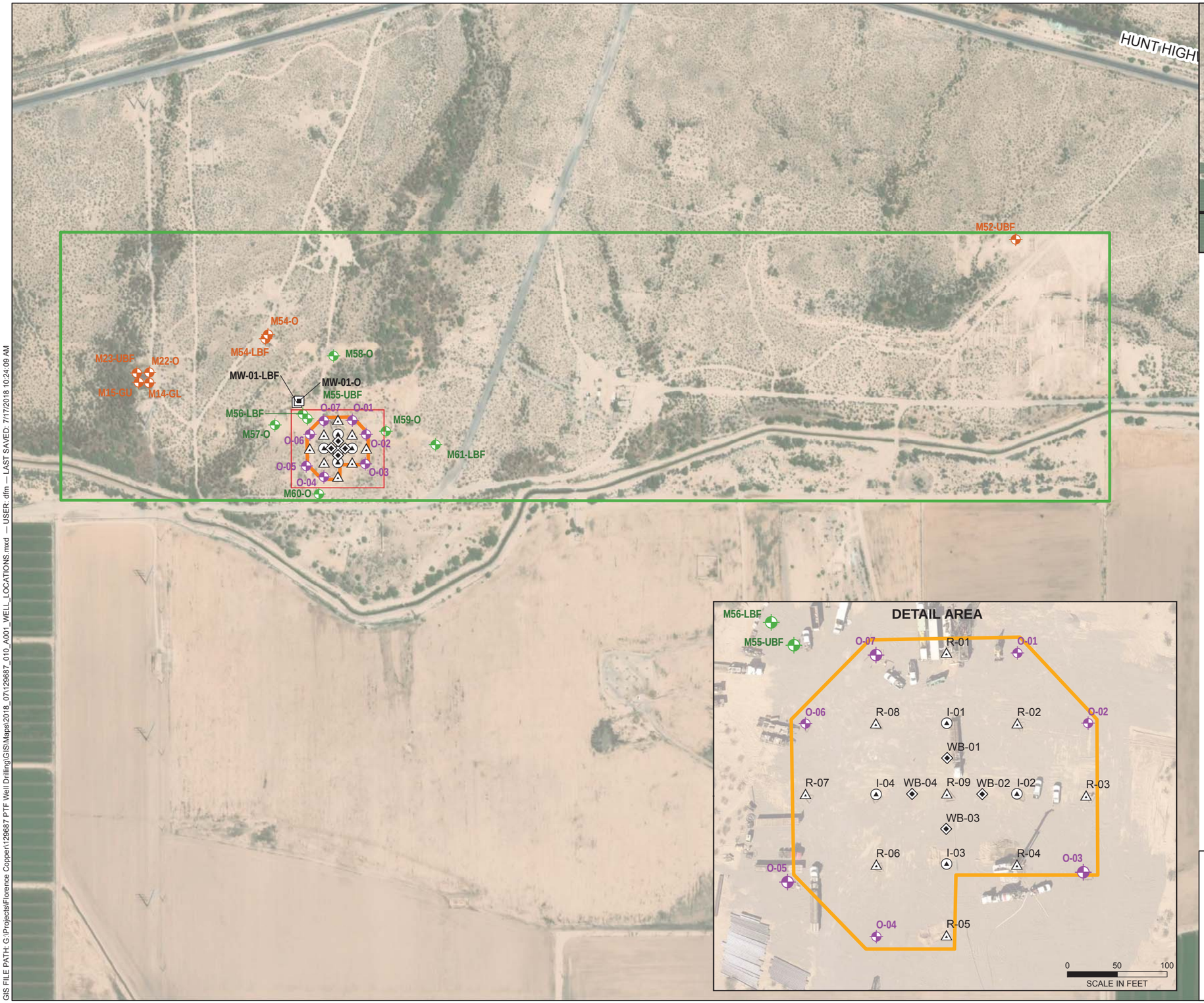
Daniel B. Stephens, Inc., 2014. *Geochemical Evaluation to Forecast Composition of Process Solutions for In-Situ Copper Recovery Pilot Test Facility at Florence Copper, Florence Arizona.* Prepared for Florence Copper. May.

Haley & Aldrich, Inc., 2017. *Bid Specification: Drilling, Installation, and Testing of Class III Observation Wells, Production Test Facility, Florence, Arizona*. Revised September 2017.

Enclosures:

- Figure 1 – Well Locations
- Figure 2 – Recover Well Head Detail
- Figure 3 – Geophysical Data and Lithologic Log
- Figure 4 – Well R-06 As-Built Diagram
- Appendix A – Arizona Department of Water Resources Well Registry Report
- Appendix B – Lithologic Log
- Appendix C – Chemical Characteristics of Formation Water
- Appendix D – Well Completion Documentation
- Appendix E –Geophysical Logs
- Appendix F – Cement Bond Log Summary
- Appendix G – SAPT Documentation
- Appendix H – Well Development Field Forms
- Appendix I – Well Video Log and Gyroscopic Survey Reports

FIGURES



0 1,250 2,500
SCALE IN FEET

LEGEND

- OBSERVATION WELL
- SUPPLEMENTAL MONITORING WELL
- POINT-OF-COMPLIANCE WELL

PTF WELL

- INJECTION
- RECOVERY
- WESTBAY WELL
- OPERATIONAL MONITORING
- PTF WELL FIELD
- STATE LAND LEASE

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: ESRI

N

0 500 1,000
SCALE IN FEET

HALEY ALDRICH

FLORENCE COPPER PROJECT
FLORENCE, ARIZONA

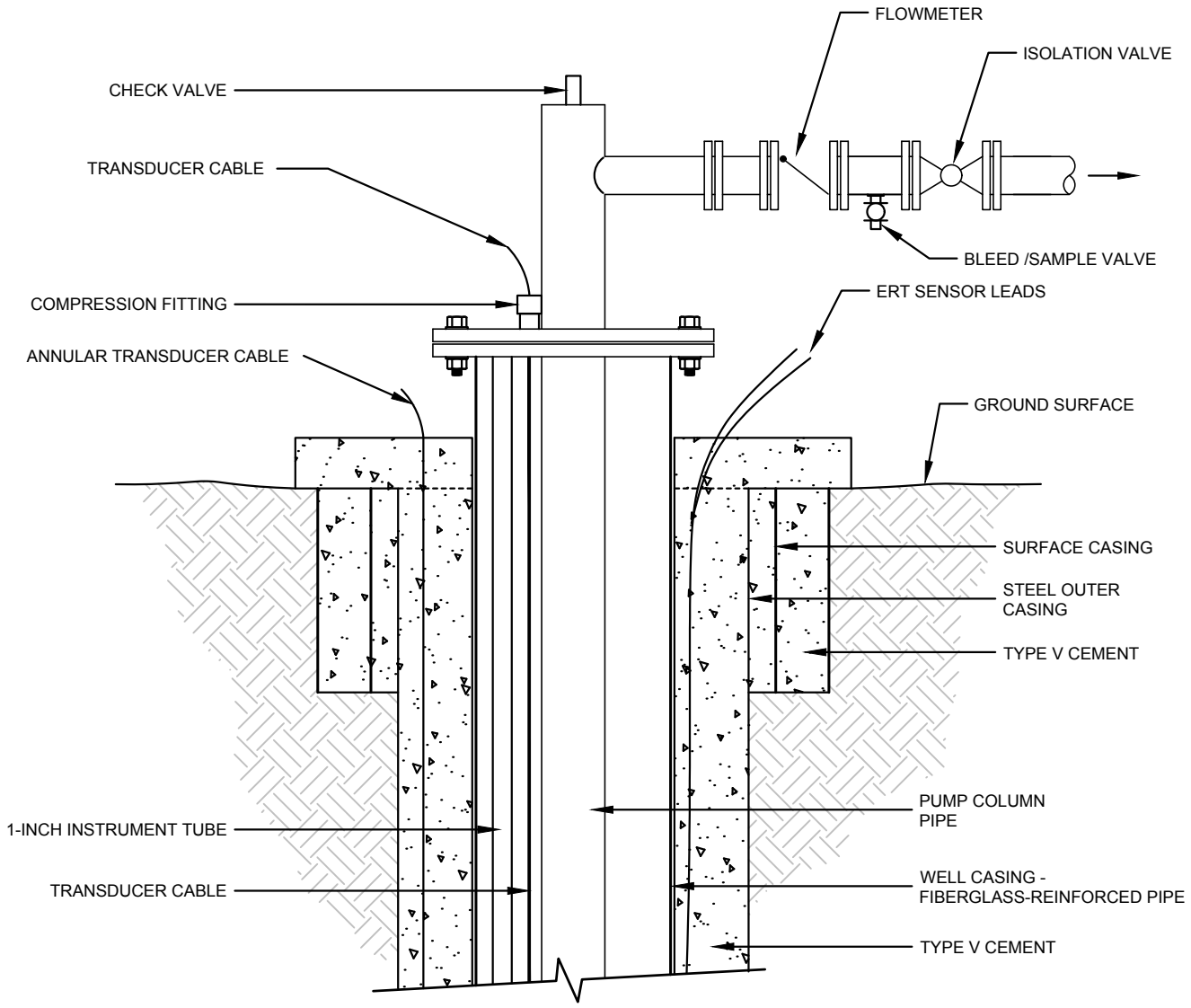
WELL LOCATIONS

FLORENCE COPPER INC.

AUGUST 2018

FIGURE 1

GIS FILE PATH: G:\Projects\Florence Copper\129687 PTF Well Drilling\GIS\Maps\2018_07\129687_010_A001_WELL_LOCATIONS.mxd — USER: dfm — LAST SAVED: 7/17/2018 10:24:09 AM



NOTES

1. ERT - ELECTRICAL RESISTIVITY TOMOGRAPHY

HALEY ALDRICH

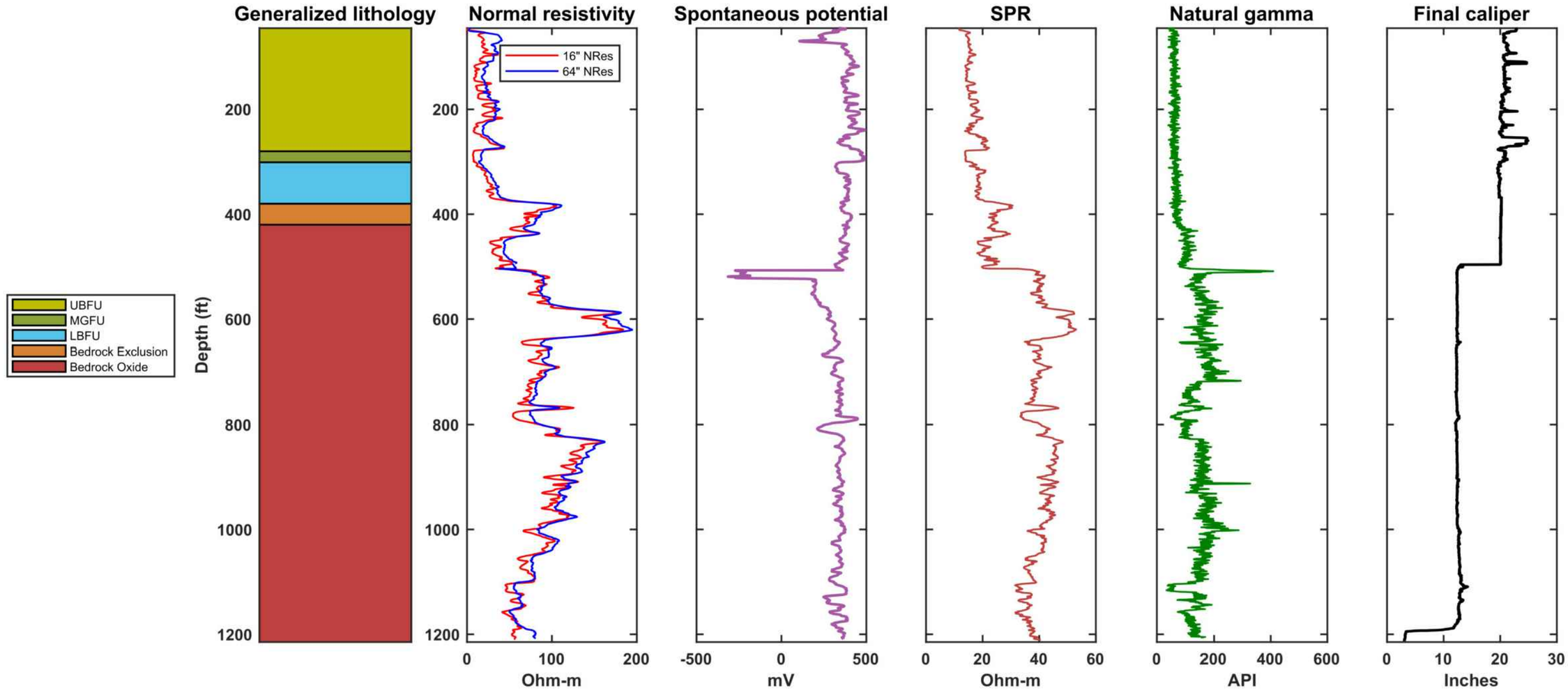
PRODUCTION TEST FACILITY
FLORENCE COPPER, INC.
FLORENCE, ARIZONA

RECOVERY WELL HEAD DETAIL

FLORENCE COPPER INC.

SCALE: NOT TO SCALE
SEPTEMBER 2018

FIGURE 2



MCELENEY, TERRI Printed: 8/7/2018 9:45 AM Layout: R06
G:\129687\GLOBAL\CAD\129687-010 GEOPHYICAL DATA2 2018-0802.DWG

HALEY ALDRICH

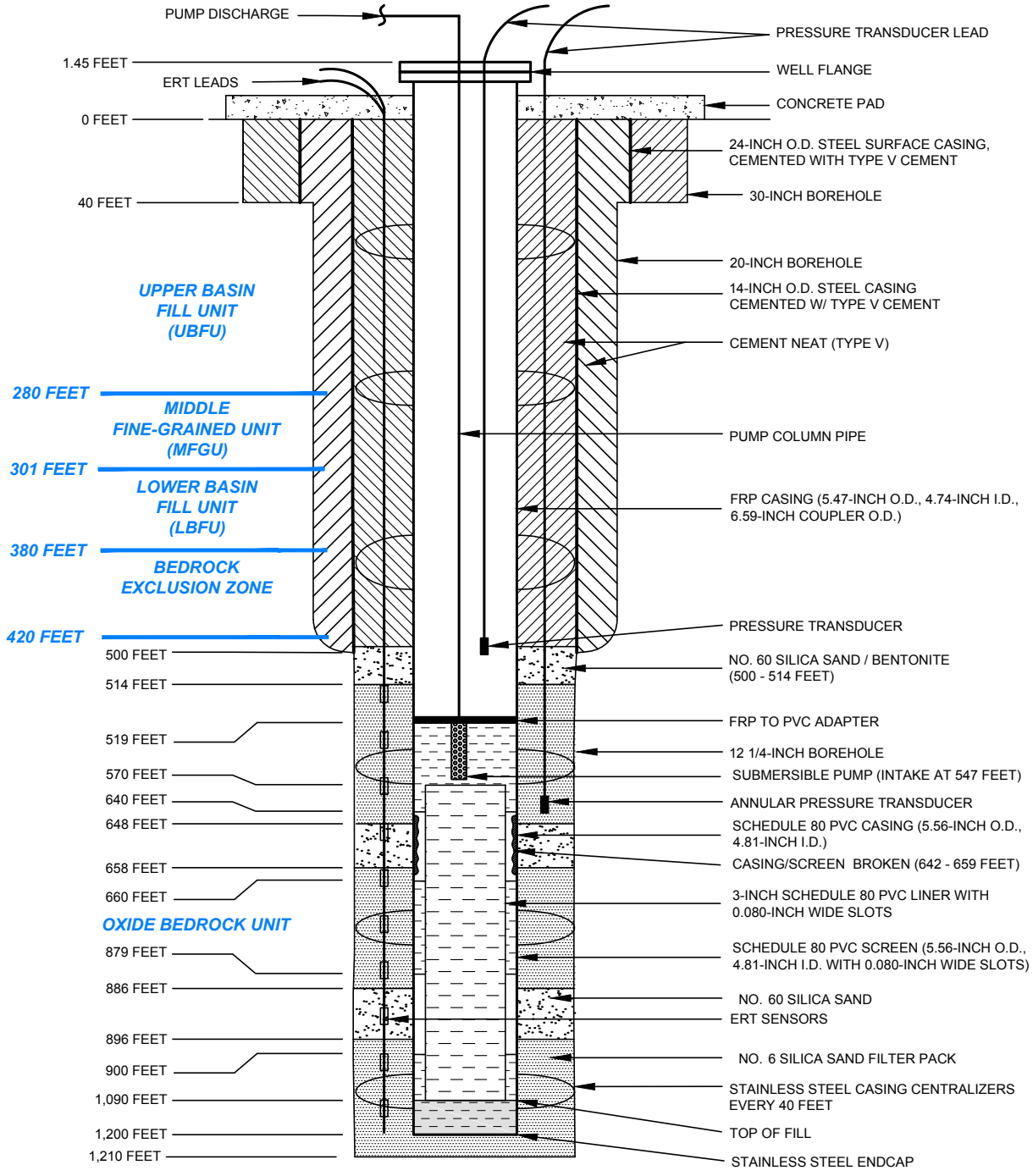
PRODUCTION TEST FACILITY
FLORENCE COPPER, INC.
FLORENCE, ARIZONA

R-06 RECOVERY WELL GEOPHYSICAL DATA AND LITHOLOGIC LOG

FLORENCE COPPER

SCALE: AS SHOWN
SEPTEMBER 2018

FIGURE 3



ANNULAR SENSOR DETAILS

- ERT SENSOR DEPTHS - 634, 694, 754, 814, 874, 934, 994, 1054, 1114, 1175
- ANNULAR TRANSDUCER DEPTH - 635 FEET

NOTES

1. WELL REGISTRATION NO.: 55-227707
2. CADASTRAL LOCATION: D(4-9) 28 CBD
3. MEASURING POINT ELEVATION: 1481.52 FEET AMSL
4. I.D. = INSIDE DIAMETER
5. O.D. = OUTSIDE DIAMETER
6. PVC = POLYVINYL CHLORIDE
7. FRP = FIBERGLASS REINFORCED PLASTIC
8. ERT = ELECTRICAL RESISTIVITY TOMOGRAHY
9. SOUNDING TUBE INSTALLED TO ~ 500 FEET

HALEY ALDRICH

PRODUCTION TEST FACILITY
FLORENCE COPPER, INC.
FLORENCE, ARIZONA

R-06 RECOVERY WELL AS-BUILT DIAGRAM

FLORENCE COPPER

SCALE: NOT TO SCALE
SEPTEMBER 2018

FIGURE 4

APPENDIX A

Arizona Department of Water Resources Well Registry Report

ARIZONA DEPARTMENT OF WATER RESOURCES

1110 W. Washington St. Suite 310
Phoenix, Arizona 85007

THIS AUTHORIZATION SHALL BE IN POSSESSION OF THE DRILLER DURING ALL DRILLING OPERATIONS

WELL REGISTRATION NO: **55-227705** WELL OWNER ID: R-06

AUTHORIZED DRILLER: **LAYNE CHRISTENSEN COMPANY** LICENSE NO: **7**

NOTICE OF INTENTION TO DRILL NON-EXEMPT WELL(S) HAS BEEN FILED WITH THE DEPARTMENT BY:

WELL OWNER: **FLORENCE COPPER INC 1575 W HUNT HWY FLORENCE, AZ, 85132**

THE WELL(S) IS/ARE TO BE LOCATED IN THE:

SE 1/4 of the **NW** 1/4 of the **SW** 1/4 Section **28** Township **4.0** **SOUTH** Range **9.0** **EAST**

NO. OF WELLS IN THIS PROJECT: **1**

THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE DAY OF **August 22, 2018**

Sheila Murillo

GROUNDWATER PERMITTING AND WELLS

THE DRILLER MUST FILE A LOG OF THE WELL WITHIN 30 DAYS OF COMPLETION OF DRILLING.

ARIZONA DEPARTMENT of WATER RESOURCES
1110 W. Washington St. Suite 310
Phoenix, AZ 85007
602-771-8500
azwater.gov

March 1, 2018

FLORENCE COPPER INC
1575 W HUNT HWY
FLORENCE, AZ 85132

DOUGLAS A. DUCEY
Governor

THOMAS BUSCHATZKE
Director

Registration No. 55- 227705
File Number: D(4-9) 28 CBD

Dear Well Applicant:

Enclosed is a copy of the Notice of Intention to Drill (NOI) a well which you or your driller recently filed with the Department of Water Resources. This letter is to inform you that the Department has approved the NOI and has mailed, or made available for download, a drilling authorization card to your designated well drilling contractor. The driller may not begin drilling until he/she has received the authorization, and must keep it in their possession at the well site during drilling. Although the issuance of this drill card authorizes you to drill the proposed well under state law, the drilling of the well may be subject to restrictions or regulations imposed by other entities.

Well drilling activities must be completed within one year after the date the NOI was filed with the Department. If drilling is not completed within one year, a new NOI must be filed and authorization from this Department received before proceeding with drilling. If the well cannot be successfully completed as initially intended (dry hole, cave in, lost tools, etc.), the well must be properly abandoned and a Well Abandonment Completion Report must be filed by your driller [as required by A.A.C. R12-15-816(F)].

If you change drillers, you must notify the Department of the new driller's identity on a Request to Change Well Information (form 55-71A). Please ensure that the new driller is licensed by the Department to drill the type of well you require. A new driller may not begin drilling until he/she receives a new drilling authorization card from the Department.

If you find it necessary to change the location of the proposed well(s), you may not proceed with drilling until you file an amended NOI with the Department. An amended drilling authorization card will then be issued to the well drilling contractor, which must be in their possession before drilling begins.

Arizona statute [A.R.S. § 45-600] requires registered well owners to file a Pump Installation Completion Report (form 55-56) with the Department within 30 days after the installation of pumping equipment, if authorized. A blank report is enclosed for your convenience. State statute also requires the driller to file a complete and accurate Well Drillers Report and Well Log (form 55-55) within 30 days after completion of drilling. A blank report form was provided to your driller with the drilling authorization card. You should insist and ensure that all of the required reports are accurately completed and timely filed with the Department.

Please be advised that Arizona statute [A.R.S. § 45-593(C)] requires a registered well owner to notify the Department of a change in ownership of the well and/or information pertaining to the physical characteristics of the well in order to keep this well registration file current and accurate. Any change in well information or a request to change well driller must be filed on a Request to Change Well Information form (form 55-71A) that may be downloaded from the ADWR Internet website at www.azwater.gov.

Sincerely,

Stella Murillo

Groundwater Permitting and Wells Section

Arizona Department of Water Resources
Information Management Unit
PO Box 36020 , Phoenix, AZ 85067-6020
(602) 771-8527 • 1-800-352-8488

Pump Installation Completion Report

- Review instructions prior to completing form in black or blue ink.
- The registered well owner shoud file this report with the Department within 30 days following installation of pump equipment.

** PLEASE PRINT CLEARLY **

FILE NUMBER: D(4-9) 28 CBD
WELL REGISTRATION NUMBER: 55 - 227705

SECTION 1. REGISTRY INFORMATION

Well Owner

FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL: FLORENCE COPPER INC

MAILING ADDRESS: 1575 W HUNT HWY

CITY / STATE / ZIP: FLORENCE. AZ. 85132

CONTACT PERSON NAME AND TITLE:

TELEPHONE NUMBER: 520 374-3984

FAX:

Location of Well

WELL LOCATION ADDRESS (IF ANY):

TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE 1/4	40 ACRE 1/4	10 ACRE 1/4

COUNTY ASSESSOR'S PARCEL ID NUMBER (MOST RECENT)

BOOK	MAP	PARCEL

COUNTY WHERE WELL IS LOCATED:

SECTION 2. EQUIPMENT INSTALLED

DATE PUMP INSTALLED:

Pump Type

CHECK ONE

- ☐ Air Lift
- ☐ Bucket
- ☐ Centrifugal
- ☐ Jet
- ☐ Piston
- ☐ Rotary
- ☐ Submersible
- ☐ Turbine
- ☐ Other *(Please Specify):*

RATED PUMP CAPACITY: Gallons Per Minute

Pitless Adaptor

CHECK ONE *(SEE INSTRUCTIONS FOR DEFINITION)*

Was a pitless adaptor installed? ☐ Yes ☐ No

IF YES, DEPTH BELOW GROUND LEVEL THE DEVICE WAS INSTALLED: Feet

Power Type

CHECK ONE

- ☐ Diesel Engine
- ☐ Electric Motor
- ☐ Gasoline Engine
- ☐ Hand
- ☐ Natural Gas
- ☐ Windmill
- ☐ Other *(Please Specify):*

HORSE POWER RATING OF MOTOR:

SECTION 3. PUMP TEST

Pump Test Data

DATE WELL TESTED:

STATIC WATER LEVEL (A): Feet Below Land Surface

PUMPING WATER LEVEL (B): Feet Below Land Surface

DRAWDOWN [(B) - (A)]: Feet Below Land Surface

TEST PUMPING RATE: Gallons Per Minute

DURATION OF PUMP TEST (Minimum 4 Hours): Hours

TOTAL PUMPING LIFT: Feet

FOR FLOWING WELL, MEASURED SHUT IN HEAD ☐ FT ☐ PSI

Method of Discharge Measurement

CHECK ONE

- ☐ Bailer
- ☐ Bucket - Barrel - Stopwatch
- ☐ Current
- ☐ Estimated - Air Lift
- ☐ Gauge
- ☐ Meter
- ☐ Orifice
- ☐ Volume
- ☐ Weir - Flume
- ☐ Other *(Please Specify):*

Method of Measuring Water Level

CHECK ONE

- ☐ Air Line
- ☐ Electric Measuring Line (Sounder)
- ☐ Steel Tape
- ☐ Other *(Please Specify):*

I HEREBY CERTIFY that the above statements are true to the best of my knowledge and belief according to A.R.S. § 45-600(B).

SIGNATURE OF WELL OWNER:

DATE:

Arizona Department of Water Resources
Groundwater Permitting and Wells
PO Box 36020 • Phoenix, Arizona 85067-6020
(602) 771-8527 • 602-771-8500
www.azwater.gov

Well Driller Report and Well Log

THIS REPORT MUST BE FILED WITHIN **30 DAYS** OF COMPLETING THE WELL.

PLEASE PRINT CLEARLY USING BLACK OR BLUE INK

FILE NUMBER: **D(4-9) 28 CBD**
WELL REGISTRATION NUMBER: **55 - 227705**
PERMIT NUMBER (IF ISSUED):

SECTION 1. DRILLING AUTHORIZATION

Drilling Firm

Mail To:

NAME	DWR LICENSE NUMBER
LAYNE CHRISTENSEN COMPANY	7
ADDRESS: 12030 EAST RIGGS ROAD	TELEPHONE NUMBER: 480-895-9336
CITY / STATE / ZIP: CHANDLER, AZ, 85249-3701	FAX

SECTION 1. REGISTRY INFORMATION

Well Owner

FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL: FLORENCE COPPER INC

MAILING ADDRESS: 1575 W HUNT HWY

CITY / STATE / ZIP: FLORENCE, AZ, 85132

CONTACT PERSON NAME AND TITLE:

TELEPHONE NUMBER: 520 374-3984

FAX:

WELL NAME (e.g., MW-1, PZ-3, lot 25 Well, Smith Well, etc.): R-06

Location of Well

WELL LOCATION ADDRESS (IF ANY):

TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE 1/4	40 ACRE 1/4	10 ACRE 1/4

LATITUDE			LONGITUDE		
° DEGREES	' MINUTES	"N SECONDS	° DEGREES	' MINUTES	"W SECONDS

METHOD OF LATITUDE/LONGITUDE (CHECK ONE)
☐ *GPS: Hand-Held ☐ Conventional Survey ☐ *GPS: Survey-Grade

LAND SURFACE ELEVATION AT WELL: Feet Above Sea Level

METHOD OF ELEVATION (CHECK ONE)
☐ *GPS: Hand-Held ☐ Conventional Survey ☐ *GPS: Survey-Grade

*IF GPS WAS USED, GEOGRAPHIC COORDINATE DATUM (CHECK ONE)
☐ NAD-83 ☐ Other (please specify)

COUNTY	ASSESSOR'S PARCEL ID NUMBER (MOST RECENT)		
	BOOK	MAP	PARCEL

SECTION 3. WELL CONSTRUCTION DETAILS

Drilling Method

CHECK ONE
☐ Air Rotary
☐ Bored or Augered
☐ Cable Tool
☐ Dual Rotary
☐ Mud Rotary
☐ Reverse Circulation
☐ Driven
☐ Jetted
☐ Air Percussion / Odex Tubing
☐ Other (please specify)

Method of Well Development

CHECK ONE
☐ Airlift
☐ Bail
☐ Surge Block
☐ Surge Pump
☐ Other (please specify)

Condition of Well

CHECK ONE
☐ Capped
☐ Pump Installed

Method of Sealing at Reduction Points

CHECK ONE
☐ None
☐ Packed
☐ Swedged
☐ Welded
☐ Other (please specify)

Construction Dates

DATE WELL CONSTRUCTION STARTED:

DATE WELL CONSTRUCTION COMPLETED:

I state that this notice is filed in compliance with A.R.S. § 45-596 and is complete and correct to the best of my knowledge and belief.

SIGNATURE OF QUALIFYING PARTY	DATE

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55 - 227705

SECTION 4. WELL CONSTRUCTION DESIGN (AS BUILD) (attach additional page if needed)

Depth

DEPTH OF BORING	DEPTH OF COMPLETED WELL
Feet Below Land Surface	Feet Below Land Surface

Water Level Information

STATIC WATER LEVEL	DATE MEASURED	TIME MEASURED	IF FLOWING WELL, METHOD OF FLOW REGULATION
Feet Below Land Surface			☐ Valve ☐ Other:

Borehole

DEPTH FROM SURFACE		
FROM (feet)	TO (feet)	BOREHOLE DIAMETER (inches)

Installed Casing

DEPTH FROM SURFACE			MATERIAL TYPE (X)				PERFORATION TYPE (X)						
FROM (feet)	TO (feet)	OUTER (inches)	STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	BLANK OR NONE	WIRE WRAP	SHUTTER SCREEN	MILLS KNIFE	SLOTTED	IF OTHER TYPE, DESCRIBE	SLOT SIZE (inches)

Installed Annular Material

DEPTH FROM SURFACE		ANNULAR MATERIAL TYPE (X)								FILTER PACK		
						BENTONITE						
FROM (feet)	TO (feet)	NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	GROUT	CHIPS	PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	SAND	GRAVEL	SIZE

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55 - 227705

SECTION 5. GEOLOGIC LOG OF WELL

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	**Description** Describe material, grain size, color, etc.	Check (X) every interval where water was encountered (if known)

Well Driller Report and Well Log

WELL REGISTRATION NUMBER
55 - 227705

SECTION 6. WELL SITE PLAN

NAME OF WELL OWNER	COUNTY ASSESSOR'S PARCEL ID NUMBER (MOST RECENT)		
	BOOK	MAP	PARCEL
FLORENCE COPPER INC			

- Required for all wells, please draw the following: (1) the boundaries of property on which the well was located; (2) the well location; (3) the locations of all septic tank systems and sewer systems on the property or within 100 feet of the well location, even if on neighboring properties; and (4) any permanent structures on the property that may aid in locating the well.
- Please indicate the distance between the well location and any septic tank system or sewer system.

1" = _____ ft

Arizona Department of Water Resources
Groundwater Permitting and Wells Section
P.O. Box 36020 Phoenix, Arizona 85067-6020
(602) 771-8527 • www.azwater.gov

Request to Change Well Information

- Review instructions prior to completing form in black or blue ink.
- You must include with your Notice:
  - check or money order for any required fee(s)
- Authority for fee: A.R.S. § 45-113 and A.A.C. R12-15-104

** PLEASE PRINT CLEARLY **

FILE NUMBER

WELL REGISTRATION NUMBER
55 - 227705

Well ID: R-06

RECEIVED
MAR 1 2018
ARIZONA DEPARTMENT OF WATER RESOURCES

SECTION 1. REGISTRY INFORMATION

Well Owner

FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL
Florence Copper Company

MAILING ADDRESS
1575 W Hunt Hwy

CITY / STATE / ZIP CODE
Florence, AZ 85132

CONTACT PERSON NAME AND TITLE
Ian Ream, Senior Hydrogeologist

TELEPHONE NUMBER: 520-374-3984
FAX: 520-374-3999

Location of Well

WELL LOCATION ADDRESS (IF ANY) / OR CROSS STREETS

TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE
4.0 S	9.0 E	28	SW ¼	NW ¼	SE ¼

LATITUDE			LONGITUDE		
33 ° Degrees	2 ' Minutes	59.99 "N Seconds	111 ° Degrees	26 ' Minutes	5.53 "W Seconds

METHOD OF LATITUDE/LONGITUDE (CHECK ONE) ☐ *GPS: Hand-Held ☐ Google Earth ☐ Conventional Survey ☐ *GPS: Survey-Grade
*IF GPS WAS USED, GEOGRAPHIC COORDINATE DATUM (CHECK ONE) ☐ NAD-83 ☐ Other (*please specify*):

COUNTY ASSESSOR'S PARCEL ID NUMBER			COUNTY WHERE WELL IS LOCATED
BOOK	MAP	PARCEL	
		1001	PINAL

Type of Request (CHECK ONE)

☒ Change of Well Drilling Contractor *(Fill out Section 2)* ☐ Change of Well Ownership *(Fill out Section 3)* ☐ Change of Well Information (location, use, etc.) *(Fill out Section 4)*

SECTION 2. REQUEST TO CHANGE WELL DRILLING CONTRACTOR

FEE $120 per Well

- If drilling or abandoning a well, the Department must receive this request and issue authorization to the new drilling firm PRIOR TO the commencement of well drilling or abandonment.

Current Well Drilling Contractor		New Well Drilling Contractor	
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL		FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL	
HydroResources, Inc.		Cascade Drilling	
DWR LICENSE NUMBER		DWR LICENSE NUMBER	ROC LICENSE CATEGORY
816		226	A-4
TELEPHONE NUMBER	FAX	TELEPHONE NUMBER	FAX
(303) 857-7540		(623) 935-0124	

SECTION 3. STATEMENT OF CHANGE OF WELL OWNERSHIP

FEE $30 per Well

Previous Well Owner		New Well Owner	
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL		FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL	
MAILING ADDRESS		MAILING ADDRESS	
CITY / STATE / ZIP CODE		CITY / STATE / ZIP CODE	
CONTACT PERSON NAME AND TITLE		CONTACT PERSON NAME AND TITLE	
TELEPHONE NUMBER	FAX	TELEPHONE NUMBER	FAX

SECTION 4. CHANGE OF WELL INFORMATION (No Fee Required)

NOTE: Applies only to wells that have already been drilled. For proposed wells, an amended Notice of Intent to Drill a Well must be filed.

EXPLAIN

SECTION 5. OPTIONAL BY PROPERTY OWNER AND WELL OWNER ONLY

☐ By checking this box, I hereby provide ADWR permission to enter the property for the purpose of taking water level measurements at this well. *(See instructions.)*

SECTION 6. WELL OWNER SIGNATURE

I HEREBY CERTIFY that the above statements are true to the best of my knowledge and belief.

TYPE OR PRINT NAME AND TITLE	SIGNATURE OF WELL OWNER	DATE
Ian Ream, Sr. Hydrogeologist		2-28-2018

Printed: 3/1/2018 9:50:47 AM

Arizona Department of Water Resources

1110 West Washington Street, Suite 310
Phoenix AZ 85007

Customer:
LAUREN CANDREVA
209 S. MARIN DR.
GILBERT, AZ 85296

Receipt #: 18-57049
Office: MAIN OFFICE
Receipt Date: 03/01/2018
Sale Type: IN_PERSON
Cashier: WRSAM

Item No.	Function Code	AOBJ	Description	Ref ID	Qty	Unit Price	Ext Price
81920	WRFREV	4439-TT	CHANGE OF WELL DRILLER CONTRACTOR OR REISSUE	227705	1	120.00	120.00
						RECEIPT TOTAL:	**120.00**

Payment type: CREDIT CARD
Amount Paid: $120.00
Payment Received Date: 03/01/2018

Authorization 08745C

Notes: FROM TTA.

No refund without valid receipt

Run Date: 09/07/2017

AZ DEPARTMENT OF WATER RESOURCES

WELL REGISTRY REPORT - WELLS55

Location D 4.0 9.0 28 C B D

Well Reg.No 55 - 227705

AMA PINAL AMA

Registered Name FLORENCE COPPER INC
1575 W HUNT HWY
FLORENCE AZ 85132

File Type NEW WELLS (INTENTS OR APPLICATIONS)
Application/Issue Date 08/21/2017

Owner OWNER
Driller No. 816
Driller Name HYDRO RESOURCES - ROCKY MOUNTAIN, INC.
Driller Phone 303-857-7540
County PINAL
Intended Capacity GPM 0.00

Well Type NON-EXEMPT
SubBasin ELOY
Watershed UPPER GILA RIVER
Registered Water Uses INDUSTRIAL
Registered Well Uses WATER PRODUCTION
Discharge Method NO DISCHARGE METHOD LISTED
Power NO POWER CODE LISTED

Well Depth	0.00	**Case Diam**	0.00	**Tested Cap**	0.00
Pump Cap.	0.00	**Case Depth**	0.00	**CRT**	
Draw Down	0.00	**Water Level**	0.00	**Log**	
		Acres Irrig	0.00	**Finish**	NO CASING CODE LISTED

Contamination Site: NO - NOT IN ANY REMEDIAL ACTION SITE

Tribe: Not in a tribal zone

Comments R-06

Current Action

9/1/2017 555 DRILLER & OWNER PACKETS MAILED
Action Comment: sm

Action History

9/12/2017 550 DRILLING AUTHORITY ISSUED
Action Comment: sm

8/29/2017 867 APP/NOI HYDRO/WATER QUALITY REVIEW COMPLETE
Action Comment: pw

8/28/2017 866 APP/NOI SENT TO HYDRO/WATER QUALITY REVIEW
Action Comment: sm

8/21/2017 150 NOI RECEIVED FOR A NEW PRODUCTION WELL
Action Comment:

ARIZONA DEPARTMENT OF WATER RESOURCES
GROUNDWATER PERMITTING AND WELLS UNIT
1110 Washington St., Suite 310, Phoenix, AZ 85007-2952

THIS AUTHORIZATION SHALL BE IN THE POSSESSION OF THE DRILLER DURING ALL DRILL OPERATIONS

WELL R-06

WELL REGISTRATION NO: 55-227705

AUTHORIZED DRILLER: HYDRO RESOURCES **LICENSE NO:** 816

A NOTICE OF INTENTION TO DRILL A NON-EXEMPT WELL INSIDE THE PHOENIX ACTIVE MANAGEMENT AREA HAS BEEN GRANTED TO:

WELL OWNER: FLORENCE COOPER, INC. 1575 W HUNT HWY FLORENCE, AZ 85132

The well(s) is/are to be located in the:

SE¼ of the NW¼ of the SW¼ of Section 28, Township 4 South, Range 9 East

No. of well(s) in this project: 1

THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE 22TH DAY OF AUGUST, 2018.

Stella Murillo

GROUNDWATER PERMITTING AND WELLS UNIT

THE DRILLER MUST FILE A LOG OF THE WELL WITHIN 30 DAYS OF COMPLETION OF DRILLING

DOUGLAS A. DUCEY
Governor

THOMAS BUSCHATZKE
Director

ARIZONA DEPARTMENT of WATER RESOURCES
1110 W. Washington St., Suite 310
Phoenix, Arizona 85007-2952
602.771.8500
azwater.gov

September 1, 2017

Ian Ream
Florence Copper, Inc.
1575 W. Hunt Hwy
Florence, AZ 85132

RE: Notice of Intention to Modify an Existing Non-Exempt Well
Well Registration No. 55-227700 thru 55-227708
File No. D (4-9) 28 CCA & CCD

Dear Mr. Ream:

The Notice of Intention to Modify an Existing Non-Exempt Well inside the Pinal Active Management Area has been approved. A copy of the Notice is enclosed for your records. The drilling card for the modification of the above referenced well has been forwarded to your well driller.

Within 30 days of completion of the well, the well driller is required to furnish this Department with a complete and accurate log of the well. In addition, the well owner is required to submit the enclosed Completion Report within 30 days of installation of pump equipment.

Pursuant to the provisions of A.R.S. § 45-604, any person withdrawing groundwater from a well is required to use a water measuring device to record rates of withdrawal in order to provide or allow the computation of an annual volume of pumpage from the well. The total volume of pumpage shall be reported on an annual report. The annual report shall be submitted no later than March 31 following the end of each completed annual reporting period. The first annual report period shall be from the date of this permit through December 31, 2017.

The Department has issued the authorization to modify this well pursuant to A.R.S. §§ 45-596 and 45-597 of the Groundwater Code. The legal nature of the water withdrawn from the well may be the

subject of court action in the future as part of a determination of surface water rights in your area. If there are court proceedings that could affect your well, you will be notified and be given the opportunity to participate.

Under A.R.S. § 45-593, the person to whom a well is registered must notify the Department of a change in ownership, physical characteristics or any other data about the well in order to keep the well registration records current and accurate. Forms may be obtained by contacting the Department, or online at http://www.azwater.gov

If you have any questions about the terms and conditions of the permit or require any administrative corrections to this permit, please contact the Groundwater Permitting Wells Unit at (602) 771-8527.

Sincerely,

Stella Murillo

Stella Murillo, Manager
Groundwater Permitting and Wells Section

Enclosures

R-06

ARIZONA DEPARTMENT OF WATER RESOURCES
GROUNDWATER PERMITTING AND WELLS UNIT
MAIL TO: P.O. BOX 36020, PHOENIX, ARIZONA 85067-6020
1110 W. Washington St. Suite 310, Phoenix, Arizona 85007-2952
Phone (602) 771-8527 Fax (602) 771-8590

RECEIVED
AUG 21 2017
ARIZONA DEPARTMENT OF WATER RESOURCES

NOTICE OF INTENTION TO DRILL A NON-EXEMPT WELL PURSUANT TO A GROUNDWATER WITHDRAWAL PERMIT (OTHER THAN A GENERAL INDUSTRIAL USE PERMIT) IN AN ACTIVE MANAGEMENT AREA

PLEASE READ GENERAL INSTRUCTIONS AND CONDITIONS ON REVERSE SIDE OF THIS FORM BEFORE COMPLETING.
Section § 45-598, Arizona Revised Statutes provides: In an Active Management Area, prior to drilling a well, a person entitled to withdraw groundwater shall file a Notice of Intention to Drill with the Department. Pursuant to A.R.S. § 45-596 and A.A.C. R12-15-104, the filing fee for this application is $150.00.

1. **WELL/LAND LOCATION:**
   4S (Township) N/S 9E (Range) E/W 28 (Section)
   SE (10 Acre) ¼ NW (40 Acre) ¼ SW (160 Acre) ¼

2. **POSITION LOCATION OF THE WELL:**
   Latitude 33 ° 2 '59.99 N
   Longitude 111 ° 26 '5.53" W

3. **COUNTY** Pinal

4. **APPLICANT**
   Florence Copper, Inc. (Name)
   1575 W Hunt Hwy (Mailing Address)
   Florence (City) AZ (State) 85132 (Zip)
   Telephone No. 520-374-3984

5. **OWNER OF THE LAND OF WELLSITE:**
   AZ State Land (Mineral Lease #11-026500) (Name)
   1616 W Adams Street (Mailing Address)
   Phoenix (City) AZ (State) 85007 (Zip)
   Telephone No. 602-542-4631

6. **THIS NOTICE IS FILED BY:**
   Check one: ☐ Owner ☒ Lessee
   Ian Ream (Name)
   1575 W Hunt Hwy (Mailing Address)
   Florence (City) AZ (State) 85132 (Zip)

7. **DESCRIPTION OF THE PROPOSEDWELL:**
   Diameter 5 Inches
   Depth 1200 Feet
   Type of Casing Steel/FRP/PVC

8. **ESTIMATE OF TOTAL ANNUAL PUMPAGE:**
   48.5 Acre-feet per Year

9. **PRINCIPAL USE OF WATER** (be specific):
   Mineral Extraction

10. **OTHER USES INTENDED** (be specific):
    None

11. **CONSTRUCTION WILL START:**
    September (Month) 2017 (Year)

FOR DEPARTMENT USE ONLY
File No. D(4-9)28 CBD
Filed 8-21-17 By SM
Input – By
DUPLICATE
Mailed By SM
Registration 55- 227705
AMA/INA Pinal

12. **CLAIM OF ENTITLEMENT TO WITHDRAW GROUNDWATER:**
    Permit 59- 562120.0005

13. **DRILLING FIRM:**
    HydroResources (Name)
    13027 County Rd 18, Unit C (Mailing Address)
    Fort Lupton (City) CO (State) 80621 (Zip)
    303-857-7540 (Telephone No.)
    816 (DWR License Number)
    A-4 (ROC License Category)

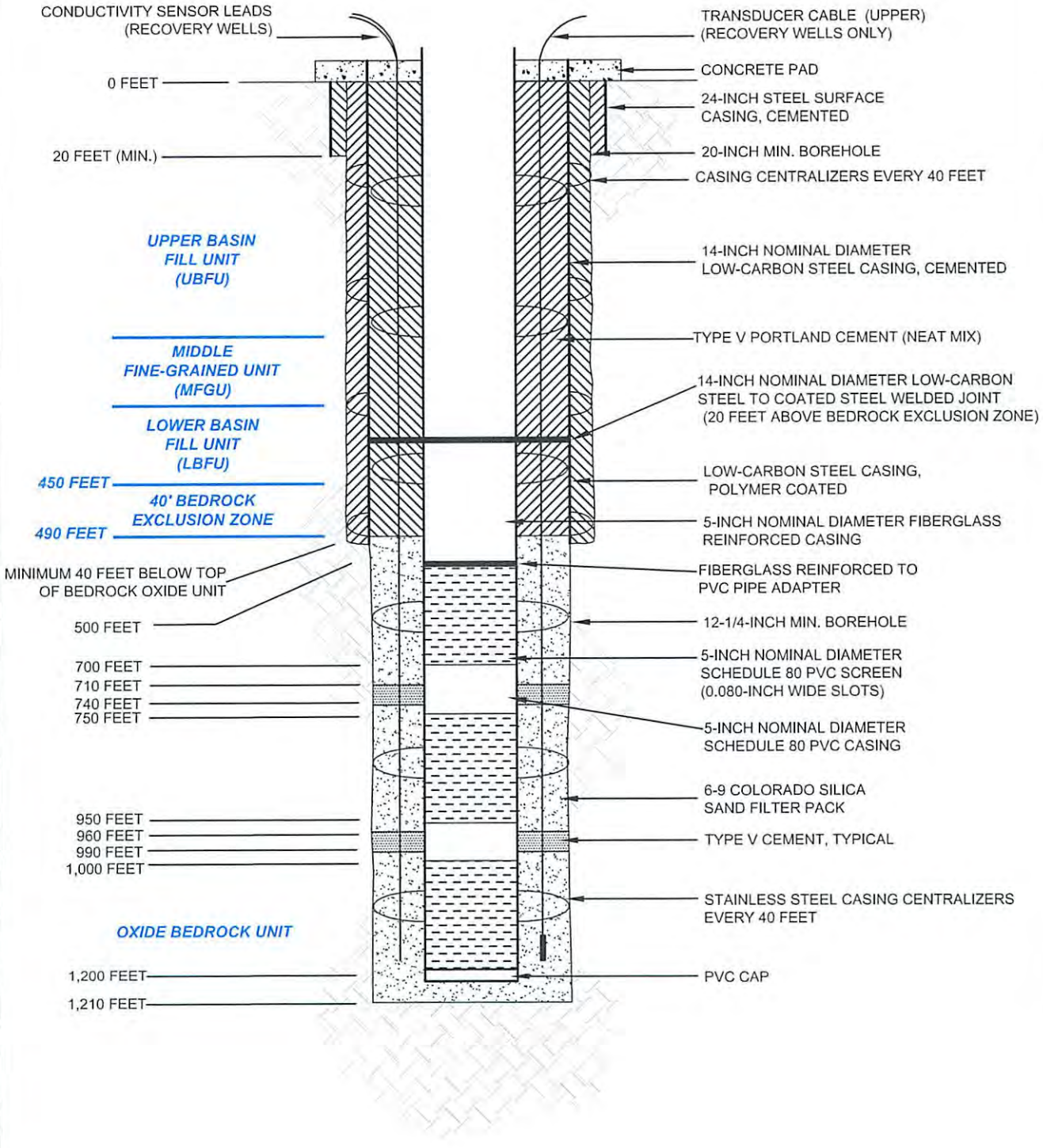
14. **Is the proposed well within 100 feet of a septic tank system, sewage area, landfill, hazardous waste facility or storage area of hazardous material or a petroleum storage area and tank?** ☐ Yes ☒ No

15. **Attach a detailed construction diagram of the proposed well design. The diagram should provide verification of consistency with minimum construction requirements. Specifically, the diagram should include an indication of the perforated interval location(s) in relationship to the expected water level; the depth and thickness of the surface seal, and grouting material used; whether the surface or conductor casing will extend above grade; and vault details, if specified.**

I state that this Notice is filed in compliance with Rules A.A.C. R12-15-809 and R12-15-816(F), and is complete and correct to the best of my knowledge and belief, and that I understand the conditions set forth on the reverse side of this form.

Ian Ream — Signature — Senior Hydrogeologist — 8-17-17

Type or Print Name and | **Signature** ☐ Land Owner ☒ Lessee of well site | **Title** | **Date**



G:\PROJECTS\CURIS RESOURCES\38706-CURIS FEASIBILITY\DRAWINGS\2014 UIC APP\FIGURES MM-1 WELL CONST DGRM JUNE2015 UPDATE.DWG

HALEY ALDRICH

FLORENCE COPPER, INC.
FLORENCE, ARIZONA

R-06
WELL CONSTRUCTION DIAGRAM

FLORENCE COPPER INC.

SCALE: NOT TO SCALE

FIGURE 1

ARIZONA DEPARTMENT OF WATER RESOURCES

GROUNDWATER PERMITTING AND WELLS UNIT
1110 W. Washington St. Suite 310, Phoenix, Arizona 85007-2952
Phone (602) 771-8585 Fax (602) 771-8688

WELL CONSTRUCTION SUPPLEMENT (form DWR 55-90)

Well Registration Number 55- 227705

1. **Well Location:**

   SE (10AC) ¼ of the NW (40AC) ¼ of the SW (160AC) ¼, Sec. 28, Township 4S Range 9E.

2. **Position Location of the Well:**

   Latitude 33 ° 2 ' 59.99 " **Longitude** 111 ° 26 ' 5.53 "

   Datum: ✓ **NAD 83** • **NAD 27** • **Other:** _____

3. **County** PINAL.

4. **Date construction to start:** SEPTEMBER 2017.

5. **Time period well will remain in use:** 5 YEARS.

6. **Is pump equipment to be installed?** YES **If so, design pump capacity:** 30 **GPM.**

7. **Well construction plan:**

   a. **Drilling method (mud rotary, hollow-stem auger, etc.)** MUD ROTARY.

   b. **Borehole diameters** 30 **inches from** 0 **feet to** 20 **feet.**
   20 **inches from** 20 **feet to** 490 **feet.**
   12.25 **inches from** 490 **feet to** 1210 **feet.**

   c. **Casing materials** STEEL/FIBERGLASS REINFORCED PLASTIC/PVC.

   d. **Method of well development (bail, air lift, surge, etc.)** AIRLIFT, SURGE.

   e. **Will surface or conductor casing extend above grade?** NO.

8. **Include a detailed construction diagram of the proposed well design. The diagram should verify consistency with minimum construction requirements specified in the Department's well construction rules found in Arizona Administrative Code (A.A.C.) R12-15-801 *et seq.* Specifically, the diagram should include borehole diameters; casing materials and diameters; perforation intervals; the expected water level; depth and thickness of the surface seal; proposed grouting materials; and the length that the surface or conductor casing will extend above grade, or vault details, if specified.**

   Pursuant to Arizona Revised Statutes (A.R.S.) § 45-594.B, all well construction, replacement, deepening and abandonment operations shall comply with the rules adopted pursuant to this section. Therefore, any existing well that is deepened or modified must be brought into compliance with minimum well construction standards specified above, if not already in compliance.

9. **Proposed materials and method of abandonment if well is to be abandoned after project is completed (Minimum requirements per A.A.C. R12-15-816):**

10. Is the proposed wellsite within 100 feet of a septic tank system, sewage disposal area, landfill, hazardous waste facility, storage area of hazardous material, or petroleum storage area or tank? _____Yes __X__No

11. Is this well to monitor existing contamination? ____Yes __X__No

Potential contamination?_____Yes __X__No If yes, please provide explanation:_____

_____

12. Name of Consulting firm, if any: HALEY & ALDRICH, INC.

400 E VAN BUREN STREET SUITE 545 | PHOENIX | AZ | 85004

Address | City | State | Zip

Contact Person: LAUREN CANDREVA Telephone Number: 602-760-2429

13. Drilling firm HYDRORESOURCES

DWR License Number: 816 ROC License Category: A-4

14. Special construction standards, if any, required pursuant to A.A.C. R12-15-821:_____

_____

I (we), Ian Ream (print name) hereby affirm that all information provided in this application is true and correct to the best of my/our knowledge and belief.

Signature of Applicant _____ Date 6-17-17

Memorandum

To: Stella Murillo, Groundwater Permitting and Wells
From: Phil Whitmore, Groundwater Permitting and Wells
CC: Jeff Tannler, Statewide AMA Director
Date: 8/29/2017
Subject: Review of Application for a Permit to Drill or Operate Nine Non-exempt Wells within an Active Management Area
59-562120 55-227700-08 D(4-9)CAC & CBD
Florence Copper, Inc.

ADWR has reviewed the above-referenced applications for nine (9) permits to drill and operate a non-exempt well in the Pinal AMA. This hydrologist review is limited to conformance with well construction standards only.

The applicant proposes to withdraw 48.5 acre-feet per year from 8 of the new wells and 97 acre-feet per year from one well pursuant to the applicant's Mineral Extraction Withdrawal permit (59-562120.0005).

Well Construction

The applicant proposes that all nine (9) wells will be drilled and constructed in the same manner and drill depths. Each well will be 1210 feet deep with three (3) 200-foot screen intervals all open in the bedrock aquifer only. Eight of wells will have 5-inch and one will have 8-inch diameter inner casing constructed with PVC and include elements to reduce chemical corrosion.

The applications each included proposed well construction diagrams indicating that the outer annulus of the wells will be sealed from the surface to 20 feet below land surface and an inner annulus will be sealed to 490 below land surface. The estimated contact of the lower basin fill unit and the crystalline bedrock is approximately 490 feet deep.

The well diagrams did not indicate the height of well stick up and the applicant did not include a request for variance. However, if stick up is to be less than 1 foot above land surface a request for variance should be submitted to comply with Arizona Administrative Code R12-15-820.

Conclusion

We recommend issuing a permit to drill and operate all nine (9) non-exempt wells in the proposed location, at the volume and well construction specifications stated in the application.

Printed: 8/21/2017 4:04:51 PM

Arizona Department of Water Resources

1110 West Washington Street, Suite 310
Phoenix AZ 85007

Customer:
LINDA DOMBROWSKI
70 BLANCHARD ROAD
BURLINGTON, MA 01803

Receipt #: 18-53413
Office: MAIN OFFICE
Receipt Date: 08/21/2017
Sale Type: IN_PERSON
Cashier: WRSAM

Item No.	Function Code	AOBJ	Description	Ref ID	Qty	Unit Price	Ext Price
67491	122221	4439-TT	Permit to drill non-exempt well in an active management area	227705	1	150.00	150.00
						RECEIPT TOTAL:	**150.00**

Payment type: CREDIT CARD
Amount Paid: $150.00
Payment Received Date: 08/21/2017

Authorization 189991565

Notes: FROM TTA.

No refund without valid receipt

APPENDIX B

Lithologic Log

LITHOLOGIC LOG

R-06

Project	Production Test Facility, Florence, Arizona
Client	Florence Copper, Inc.
Contractor	Cascade Drilling LLC

File No. 129687
Sheet No. 1 of 15
Cadastral Location D (4-9) 28 CBD

Drilling Method	Reverse Rotary	Land Surface Elevation	1478.52 feet, amsl	Start	24 November 2017
Borehole Diameter(s)	30/20/12.25 in.	Datum	State Plane NAD 83	Finish	29 March 2018
Rig Make & Model	Challenger 280	Location	N 746,061 E 847,624	H&A Rep.	S. Kaney & C. Giusti

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	COMMENTS
0	1475	SM		**SILTY SAND with GRAVEL (0-22 feet)** Primarily fine sand with ~20% fines and ~15% gravel up to 160mm. Sand is subangular to subrounded and gravel is subangular to rounded. Fines have low plasticity, low toughness, high dry strength, and are brown (7.5YR 4/4). **UBFU**	**Well Registry ID:** 55-227705 **Surface Completion:** Bolted Sealed Well Flange **Well casing stickup:** 1.15 feet als *COLOR IDENTIFICATION MADE WITH WET SAMPLES USING MUNSELL CHART*
22	1455	SW	22	**WELL GRADED SAND with GRAVEL (22-45 feet)** Primarily fine to coarse sand with ~5% fines and ~15% gravel up to 60mm. Sand is subangular to subrounded and gravel is subangular to rounded. Fines are nonplastic, have no toughness, no dry strength, and are brown (7.5YR 4/4). **UBFU**	**Surface Casing:** 24-inch mild steel; 0 - 50 feet **Overburden Casing:** 14-inch mild steel; 0 - 506 feet **Well Casing:** Nominal 5-inch diameter Fiberglass Reinforced; -1.15 - 519 feet
45	1430	SM	45	**SILTY SAND (45-60 feet)**Primarily fine sand with ~45% fines and no gravel. Sand is subrounded and fines are nonplastic, have no toughness, no dry strength, and are brown (7.5YR 4/4). **UBFU**	
60	1415	SC	60	**CLAYEY SAND (60-75 feet)** Primarily fine to medium sand with ~25% fines and ~10% gravel up to 16mm. Sand is angular to subrounded and gravel is subangular to subrounded. Fines have medium plasticity, low toughness, low dry strength, are light brown (7.5YR 6/3), and strong reaction to HCL. **UBFU**	**Unit Intervals:** UBFU: 0 -280 feet MGFU: 280 - 301 feet LBFU: 301 -380 feet Oxide Bedrock: 380 - 1220 feet
75	1405				

NOTE: Lithologic descrptions, group symbols, and grain-size determinations based on the USCS visual-manual method (Haley & Aldrich OP2001A - Field Practice for Soil Identification and Description).

R-06

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	
75	1400	SW	75	**WELL GRADED SAND (75-85 feet)** Primarily medium to fine sand with ~5% fines and ~10% gravel up to 14mm. Sand is subangular to rounded and gravel is angular to subrounded. Fines have low plasticity, low toughness, low dry strength, are brown (7.5YR 5/4), and weak reaction to HCL. **UBFU**	
80	1395				
85	1390	CH	85	**SANDY FAT CLAY (85-95 feet)** Primarily fines with ~30% sands and no gravel. The sands are angular to subrounded. Fines have medium plasticity, medium toughness, high dry strength, are red brown (7.5YR 5/4), and strong reaction to HCL. **UBFU**	
90	1385				
95	1380	SW	95	**WELL GRADED SAND (95-105)** Primarily fine to coarse sand with trace fines and trace gravel up to 8mm. Sand is subrounded to angular and gravel is subrounded. Fines are nonplastic, have no toughness, no dry strength, and are brown (7.5YR 4/3). **UBFU**	**Seal:** Type V neat cement 0 - 503 feet Fine sand/bentonite 503 - 513 feet
100	1375				
105	1370	CH	105	**SANDY FAT CLAY (105-150 feet)** Primarily fines with ~40% sands and ~5% gravel up to 14mm. Sand is subrounded to angular and gravel is subrounded to subangular. Fines have medium plasticity, medium toughness, high dry strength, are brown (7.5YR 5/4), and strong reaction to HCL. **UBFU**	
110	1365				
115	1360				
120	1355				
125	1350				
130	1345				
135	1340				
140	1335				
145	1330				
150	1325	SW	150	**WELL GRADED SAND (150-165 feet)** Primarily fine to medium sand with trace fines and ~10% gravel up to 12mm. Sand is subrounded to angular and gravel is subangular to subrounded. Fines are nonplastic, have no toughness, no dry strength, and are brown (7.5YR 5/3) and no reaction to HCL. **UBFU**	
155	1320				
160					

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
165	1315	CH	165	**SANDY FAT CLAY (165-180 feet)** Primarily fines with ~40% sands and trace gravel up to 20mm. Sand is subrounded to angular and gravel is subrounded. Fines have medium plasticity, medium toughness, high dry strength, are brown (7.5YR 5/4), and strong reaction to HCL. **UBFU**
170	1310			
175	1305			
180	1300	SW-SC	180	**WELL GRADED SAND with CLAY and GRAVEL (180-190 feet)** Primarily fine to coarse sand with ~10% fines and ~15% gravel up to 18mm. Sand and gravel is subrounded to angular. Fines have medium plasticity, medium toughness, medium dry strength, are brown (7.5YR 5/4), and moderate reaction to HCL. **UBFU**
185	1295			
190	1290	SC	190	**CLAYEY SAND with GRAVEL (190-205 feet)** Primarily sands with ~40% fines and ~15% gravel up to 21mm. Sand is subrounded to angular and gravel is subangular to subrounded. Fines have medium plasticity, medium toughness, high dry strength, are brown (7.5YR 5/4), and strong reaction to HCL. **UBFU**
195	1285			
200	1280			
205	1275	CH	205	**SANDY FAT CLAY (205-215 feet)** Primarily fines with ~40% sands and trace gravel up to 6mm. Sand is subrounded to angular and gravel is subrounded. Fines have medium plasticity, medium toughness, high dry strength, are brown (7.5YR 5/4), and strong reaction to HCL. **UBFU**
210	1270			
215	1265	SW	215	**WELL GRADED SAND (215-225 feet)** Primarily fine to coarse sand with ~5% fines and trace gravel up to 22mm. Sand is subangular to rounded and gravel is subrounded. Fines are brown (7.5YR 4/4) and strong reaction to HCL. **UBFU**
220	1260			
225	1255	CH	225	**SANDY FAT CLAY (225-245 feet)** Primarily fines with ~30% sands and ~10% gravel up to 24mm. Sand is subrounded to angular and gravel is subangular to subrounded. Fines have medium plasticity, medium toughness, high dry strength, are brown (7.5YR 5/4), and strong reaction to HCL. **UBFU**
230	1250			
235	1245			
240	1240			
245	1235	SW-SC	245	**WELL GRADED SAND with CLAY and GRAVEL (245-280 feet)** Primarily fine to coarse sand with 10% fines and 20% gravel up to 22mm. Sand is subrounded to angular and gravel is subangular to subrounded. Fines are nonplastic, have no toughness, no dry
	1230			

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
250				strength, brown (7.5YR 4/4) and weak reaction to HCL. **UBFU**
255	1225			
260	1220			
265	1215			
270	1210			
275	1205			
280	1200	CH	280	**FAT CLAY (280-301 feet)** Primarily fines with trace sand and no gravel. Fines have a high plasticity, high toughness, high dry strength, are brown (7.5YR 4/6), and strong reaction to HCL. **MGFU**
285	1195			
290	1190			
295	1185			
300	1180	SW-SM	301	**WELL GRADED SAND with SILT and GRAVEL (301-380 feet)** Primarily medium to coarse sand with ~10% fines and ~25% gravel up to 32mm. Sand and gravel is subrounded to angular. Fines have low plasticity, low toughness, medium dry strength, are brown (7.5YR 5/3), and strong reaction to HCL. **LBFU**
305	1175			
310	1170			
315	1165			
320	1160			
325	1155			
330	1150			
335	1145			

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
340	1140			
345	1135			
350	1130			
355	1125			
360	1120			
365	1115			
370	1110			
375	1105			
380	1100		380	**QUARTZ MONZONITE (380-505 feet)** Consists of quartz at approximately 35%, potassium feldspars at approximately 35%, plagioclase at approximately 25%, and biotite at approximately 5%. Cu minerals appear at 380'. Red brown oxidized with clay 450-505. Cu minerals present from 420-500.
385	1095			
390	1090			
395	1085			
400	1080			
405	1075			
410	1070			
415	1065			
420	1060		422	

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
425	1055			**QUARTZ MONZONITE (380-505 feet)** Continued
430	1050			
435	1045			
440	1040			
445	1035			
450	1030			
455	1025			
460	1020			
465	1015			
470	1010			
475	1005			
480	1000			
485	995			
490	990			
495	985			
500	980			
505	975		505	**GRANODIORITE (505-520 feet)** Contains mostly plagioclase in a gray aphanitic matrix with biotite crystals composing approximately 10%.
	970			

Filter Pack: No. 60 Silica Sand 514 - 644, 654 - 884, 895 - 1210 feet
Fine Sand Intervals: 644 - 654, 884 - 895 feet
Thread Adapter: Stainless Steel, SCH 80 F480 PVC to API; 519

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	
510	965			Cu minerals present from 505-520.	feet
515	960				
520	955		520	**QUARTZ MONZONITE (520-645 feet)** Consists of quartz at approximately 35%, potassium feldspars at approximately 35%, plagioclase at approximately 25%, and biotite at approximately 5%.	**Well Screen:** Nominal 5-inch diameter, SCH 80 PVC Screen (0.080-inch slots); 519 - 639, 660 - 879, 900 - 1200 feet
525	950			Few Cu minerals present from 525-580 and 610-640.	
530	945				**ERT Sensor Depths:** 456, 521, 586, 651, 715, 780, 845, 910, 975, 1040, 1105, 1170 feet
535	940				
540	935				
545	930				
550	925				
555	920				
560	915				
565	910				
570	905				
575	900				
580	895				
585	890				
590	885				
595					

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
			596	**QUARTZ MONZONITE (520-645 feet)** Continued
600	880			
605	875			
610	870			
615	865			
620	860			
625	855			
630	850			
635	845			
640	840			
645	835		645	**GRANODIORITE (645-660 feet)** Contains mostly plagioclase in a gray aphanitic matrix with biotite crystals composing approximately 10%.
650	830			
655	825			
660	820		660	**QUARTZ MONZONITE (660-740 feet)** Consists of quartz at approximately 35%, potassium feldspars at approximately 35%, plagioclase at approximately 25%, and biotite at approximately 5%.
665	815			
670	810			
675	805			
680	800			
			682	

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
	795			**QUARTZ MONZONITE (660-740 feet)** Continued
685				
	790			
690				
	785			
695				
	780			
700				
	775			
705				
	770			
710				
	765			
715				
	760			
720				
	755			
725				
	750			
730				
	745			
735				
	740			
740			740	**GRANODIORITE (740-800 feet)** Contains mostly plagioclase in a gray aphanitic matrix with biotite crystals composing approximately 10%.
	735			
745				
	730			
750				
	725			
755				
	720			
760				
	715			
765				
	710		769	

NOTE: Lithologic descrptions, group symbols, and grain-size determinations based on the USCS visual-manual method (Haley & Aldrich OP2001A - Field Practice for Soil Identification and Description).

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
770	705			**GRANODIORITE (740-800 feet)** Continued
775	700			
780	695			
785	690			
790	685			
795	680			
800	675		800	**QUARTZ MONZONITE (800-1115 feet)**Consists of quartz at approximately 35%, potassium feldspars at approximately 35%, plagioclase at approximately 25%, and biotite at approximately 5%. Increase in Cu minerals 855-875, 880-920, and 950-1025
805	670			
810	665			
815	660			
820	655			
825	650			
830	645			
835	640			
840	635			
845	630			
850	625			
855			856	

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
860	620			**QUARTZ MONZONITE (800-1115 feet)**Continued
865	615			
870	610			
875	605			
880	600			
885	595			
890	590			
895	585			
900	580			
905	575			
910	570			
915	565			
920	560			
925	555			
930	550			
935	545			
940	540			
			943	

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
945	535			**QUARTZ MONZONITE (800-1115 feet)**Continued
950	530			
955	525			
960	520			
965	515			
970	510			
975	505			
980	500			
985	495			
990	490			
995	485			
1000	480			
1005	475			
1010	470			
1015	465			
1020	460			
1025	455			
	450			

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
1030	445		1030	**QUARTZ MONZONITE (800-1115 feet)**Continued
1035	440			
1040	435			
1045	430			
1050	425			
1055	420			
1060	415			
1065	410			
1070	405			
1075	400			
1080	395			
1085	390			
1090	385			
1095	380			
1100	375			
1105	370			
1110	365			
1115			1115	**DIABASE (1135-1220 feet)** Dark gray to black igneous rock.

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION
1120	360			Increase in Cu minerals.
1125	355			
1130	350			
1135	345		1135	**QUARTZ MONZONITE (1135-1220 feet)** Consists of quartz at approximately 35%, potassium feldspars at approximately 35%, plagioclase at approximately 25%, and biotite at approximately 5%. Cuttings are a mix of quartz monzonite and diabase. Possible mixing of material from above.
1140	340			
1145	335			
1150	330			
1155	325			
1160	320			
1165	315			
1170	310			
1175	305			
1180	300			
1185	295			
1190	290			
1195	285			
1200	280			
	275			

Depth (ft)	Elevation	USCS Symbol	Stratum Change Depth (ft)	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION	
			1204	**QUARTZ MONZONITE (1135-1220 feet)** Continued	
1205					
	270				
1210					
	265				
1215					
	260				
1220			1220		**Borehole Depth:** Driller = 1220 feet; Geophysical Logging = 1210 feet

APPENDIX C

Chemical Characteristics of Formation Water

May 23, 2018

Barbara Sylvester
Brown & Caldwell
201 E. Washington Suite 500
Phoenix, AZ 85004

TEL (602) 567-3894
FAX -

Work Order No.: 18D0619
Order Name: Florence Copper

RE: PTF

Dear Barbara Sylvester,

Turner Laboratories, Inc. received 2 sample(s) on 04/25/2018 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Kevin Brim
Project Manager

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

Order: Florence Copper

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
18D0619-01	R-09	Ground Water	04/23/2018 1555
18D0619-02	TB	Ground Water	04/25/2018 0000

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

Case Narrative

The 8015D analysis was performed by TestAmerica Laboratories, Inc. in Phoenix, AZ.

The radiochemistry analysis was performed by Radiation Safety Engineering, Inc. in Chandler, AZ.

D5	Minimum Reporting Limit (MRL) is adjusted due to sample dilution; analyte was non-detect in the sample.
H5	This test is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS/LCSD recovery was acceptable.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor
PRL	Project Reporting Limit

Turner Laboratories, Inc.

Date: 05/23/2018

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Lab Sample ID: 18D0619-01

Client Sample ID: R-09
Collection Date/Time: 04/23/2018 1555
Matrix: Ground Water
Order Name: Florence Copper

Analyses	Result	PRL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
ICP Dissolved Metals-E 200.7 (4.4)									
Calcium	140		4.0	M3	mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
Iron	ND		0.30		mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
Magnesium	27		3.0		mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
Potassium	6.8		5.0		mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
Sodium	170		5.0	M3	mg/L	1	04/27/2018 1440	05/04/2018 1150	MH
ICP/MS Dissolved Metals-E 200.8 (5.4)									
Aluminum	ND		0.0800	D5	mg/L	2	04/27/2018 1440	05/07/2018 1139	MH
Antimony	ND		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Arsenic	0.0016		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Barium	0.071		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Beryllium	ND		0.00050	D5	mg/L	2	04/27/2018 1440	05/07/2018 1139	MH
Cadmium	ND		0.00025		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Chromium	0.0051		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Cobalt	ND		0.00025		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Copper	0.011		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Lead	ND		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Manganese	0.0020		0.00025		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Nickel	0.0033		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Selenium	ND		0.0025		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Thallium	ND		0.00050		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
Zinc	ND		0.040		mg/L	1	04/27/2018 1440	05/07/2018 1133	MH
CVAA Dissolved Mercury-E 245.1									
Mercury	ND		0.0010		mg/L	1	04/26/2018 0955	04/26/2018 1639	MH
pH-E150.1									
pH (pH Units)	7.8			H5	-	1	04/26/2018 1615	04/26/2018 1616	AP
Temperature (°C)	22			H5	-	1	04/26/2018 1615	04/26/2018 1616	AP
ICP/MS Total Metals-E200.8 (5.4)									
Uranium	0.016		0.00050		mg/L	1	04/27/2018 1230	04/30/2018 1348	MH

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Lab Sample ID: 18D0619-01

Client Sample ID: R-09
Collection Date/Time: 04/23/2018 1555
Matrix: Ground Water
Order Name: Florence Copper

Analyses	Result	PRL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Anions by Ion Chromatography-E300.0 (2.1)									
Chloride	310		25		mg/L	25	04/26/2018 1225	04/26/2018 1415	AP
Fluoride	ND		0.50		mg/L	1	04/25/2018 1208	04/25/2018 1544	AP
Nitrogen, Nitrate (As N)	8.8		0.50		mg/L	1	04/25/2018 1208	04/25/2018 1544	AP
Nitrogen, Nitrite (As N)	ND		0.10		mg/L	1	04/25/2018 1208	04/25/2018 1544	AP
Sulfate	190		130		mg/L	25	04/26/2018 1225	04/26/2018 1415	AP
Cyanide-E335.4									
Cyanide	ND		0.10		mg/L	1	04/26/2018 0845	04/30/2018 1545	AP
Alkalinity-SM2320B									
Alkalinity, Bicarbonate (As CaCO3)	150		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Alkalinity, Carbonate (As CaCO3)	ND		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Alkalinity, Hydroxide (As CaCO3)	ND		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Alkalinity, Phenolphthalein (As CaCO3)	ND		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Alkalinity, Total (As CaCO3)	150		2.0		mg/L	1	05/03/2018 1030	05/03/2018 1210	EJ
Specific Conductance-SM2510 B									
Conductivity	1700		0.20		µmhos/cm	2	05/09/2018 1315	05/09/2018 1330	AP
Total Dissolved Solids (Residue, Filterable)-SM2540 C									
Total Dissolved Solids (Residue, Filterable)	1000		20		mg/L	1	04/26/2018 0826	05/01/2018 1600	EJ
Volatile Organic Compounds by GC/MS-SW8260B									
Benzene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Carbon disulfide	ND		2.0		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Ethylbenzene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Toluene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Xylenes, Total	ND		1.5		ug/L	1	05/07/2018 1824	05/07/2018 1943	KP
Surr: 4-Bromofluorobenzene	*95*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 1943*	*KP*
Surr: Dibromofluoromethane	*101*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 1943*	*KP*
Surr: Toluene-d8	*77*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 1943*	*KP*

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Lab Sample ID: 18D0619-02

Client Sample ID: TB
Collection Date/Time: 04/25/2018 0000
Matrix: Ground Water
Order Name: Florence Copper

Analyses	Result	PRL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Volatile Organic Compounds by GC/MS-SW8260B									
Benzene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Carbon disulfide	ND		2.0		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Ethylbenzene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Toluene	ND		0.50		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Xylenes, Total	ND		1.5		ug/L	1	05/07/2018 1824	05/07/2018 2344	KP
Surr: 4-Bromofluorobenzene	*101*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 2344*	*KP*
Surr: Dibromofluoromethane	*110*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 2344*	*KP*
Surr: Toluene-d8	*103*	*70-130*			*%REC*	*1*	*05/07/2018 1824*	*05/07/2018 2344*	*KP*

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1804269 - E 245.1										
Blank (1804269-BLK1)				Prepared & Analyzed: 04/26/2018						
Mercury	ND	0.0010	mg/L							
LCS (1804269-BS1)				Prepared & Analyzed: 04/26/2018						
Mercury	0.0049	0.0010	mg/L	0.005000		98	85-115			
LCS Dup (1804269-BSD1)				Prepared & Analyzed: 04/26/2018						
Mercury	0.0048	0.0010	mg/L	0.005000		95	85-115	2	20	
Matrix Spike (1804269-MS1)		**Source: 18D0394-01**		Prepared & Analyzed: 04/26/2018						
Mercury	0.0050	0.0010	mg/L	0.005000	0.00020	97	85-115			
Matrix Spike Dup (1804269-MSD1)		**Source: 18D0394-01**		Prepared & Analyzed: 04/26/2018						
Mercury	0.0050	0.0010	mg/L	0.005000	0.00020	96	85-115	1	20	
Batch 1804292 - E200.8 (5.4)										
Blank (1804292-BLK1)				Prepared & Analyzed: 04/30/2018						
Uranium	ND	0.00050	mg/L							
LCS (1804292-BS1)				Prepared & Analyzed: 04/30/2018						
Uranium	0.046	0.00050	mg/L	0.05000		92	85-115			
LCS Dup (1804292-BSD1)				Prepared & Analyzed: 04/30/2018						
Uranium	0.046	0.00050	mg/L	0.05000		92	85-115	0.2	20	
Matrix Spike (1804292-MS1)		**Source: 18D0614-01**		Prepared & Analyzed: 04/30/2018						
Uranium	0.051	0.00050	mg/L	0.05000	0.0015	99	70-130			
Batch 1805051 - E 200.7 (4.4)										
Blank (1805051-BLK1)				Prepared & Analyzed: 05/04/2018						
Calcium	ND	4.0	mg/L							
Iron	ND	0.30	mg/L							
Magnesium	ND	3.0	mg/L							
Potassium	ND	5.0	mg/L							
Sodium	ND	5.0	mg/L							
LCS (1805051-BS1)				Prepared & Analyzed: 05/04/2018						
Calcium	11	4.0	mg/L	10.00		109	85-115			
Iron	1.0	0.30	mg/L	1.000		104	85-115			
Magnesium	10	3.0	mg/L	10.00		105	85-115			
Potassium	10	5.0	mg/L	10.00		105	85-115			
Sodium	10	5.0	mg/L	10.00		105	85-115			
LCS Dup (1805051-BSD1)				Prepared & Analyzed: 05/04/2018						
Calcium	11	4.0	mg/L	10.00		110	85-115	1	20	
Iron	1.0	0.30	mg/L	1.000		105	85-115	0.5	20	
Magnesium	10	3.0	mg/L	10.00		105	85-115	0.06	20	
Potassium	10	5.0	mg/L	10.00		105	85-115	0.05	20	
Sodium	11	5.0	mg/L	10.00		109	85-115	4	20	

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1805051 - E 200.7 (4.4)										
Matrix Spike (1805051-MS1)	**Source: 18D0619-01**			Prepared & Analyzed: 05/04/2018						
Calcium	150	4.0	mg/L	10.00	140	59	70-130			M3
Iron	1.1	0.30	mg/L	1.000	0.028	105	70-130			
Magnesium	38	3.0	mg/L	10.00	27	108	70-130			
Potassium	17	5.0	mg/L	10.00	6.8	105	70-130			
Sodium	170	5.0	mg/L	10.00	170	30	70-130			M3
Matrix Spike (1805051-MS2)	**Source: 18E0021-01**			Prepared & Analyzed: 05/04/2018						
Calcium	64	4.0	mg/L	10.00	54	103	70-130			
Iron	1.0	0.30	mg/L	1.000	0.0060	101	70-130			
Magnesium	21	3.0	mg/L	10.00	11	99	70-130			
Potassium	15	5.0	mg/L	10.00	4.7	104	70-130			
Sodium	99	5.0	mg/L	10.00	90	87	70-130			
Batch 1805069 - E 200.8 (5.4)										
Blank (1805069-BLK1)				Prepared & Analyzed: 05/07/2018						
Aluminum	ND	0.0400	mg/L							
Antimony	ND	0.00050	mg/L							
Arsenic	ND	0.00050	mg/L							
Barium	ND	0.00050	mg/L							
Beryllium	ND	0.00025	mg/L							
Cadmium	ND	0.00025	mg/L							
Chromium	ND	0.00050	mg/L							
Cobalt	ND	0.00025	mg/L							
Copper	ND	0.00050	mg/L							
Lead	ND	0.00050	mg/L							
Manganese	ND	0.00025	mg/L							
Nickel	ND	0.00050	mg/L							
Selenium	ND	0.0025	mg/L							
Thallium	ND	0.00050	mg/L							
Zinc	ND	0.040	mg/L							
LCS (1805069-BS1)				Prepared & Analyzed: 05/07/2018						
Aluminum	0.104	0.0400	mg/L	0.1000		104	85-115			
Antimony	0.048	0.00050	mg/L	0.05000		96	85-115			
Arsenic	0.050	0.00050	mg/L	0.05000		100	85-115			
Barium	0.050	0.00050	mg/L	0.05000		100	85-115			
Beryllium	0.049	0.00025	mg/L	0.05000		97	85-115			
Cadmium	0.050	0.00025	mg/L	0.05000		100	85-115			
Chromium	0.051	0.00050	mg/L	0.05000		102	85-115			
Cobalt	0.051	0.00025	mg/L	0.05000		101	85-115			
Copper	0.051	0.00050	mg/L	0.05000		103	85-115			
Lead	0.049	0.00050	mg/L	0.05000		98	85-115			
Manganese	0.050	0.00025	mg/L	0.05000		101	85-115			
Nickel	0.051	0.00050	mg/L	0.05000		102	85-115			
Selenium	0.051	0.0025	mg/L	0.05000		103	85-115			
Thallium	0.050	0.00050	mg/L	0.05000		101	85-115			
Zinc	0.10	0.040	mg/L	0.1000		101	85-115			

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1805069 - E 200.8 (5.4)										
LCS Dup (1805069-BSD1)				Prepared & Analyzed: 05/07/2018						
Aluminum	0.115	0.0400	mg/L	0.1000		115	85-115	10	20	
Antimony	0.048	0.00050	mg/L	0.05000		96	85-115	0.7	20	
Arsenic	0.050	0.00050	mg/L	0.05000		101	85-115	0.8	20	
Barium	0.051	0.00050	mg/L	0.05000		102	85-115	1	20	
Beryllium	0.049	0.00025	mg/L	0.05000		97	85-115	0.2	20	
Cadmium	0.050	0.00025	mg/L	0.05000		100	85-115	0.2	20	
Chromium	0.051	0.00050	mg/L	0.05000		102	85-115	0.4	20	
Cobalt	0.050	0.00025	mg/L	0.05000		101	85-115	0.5	20	
Copper	0.052	0.00050	mg/L	0.05000		105	85-115	2	20	
Lead	0.049	0.00050	mg/L	0.05000		98	85-115	0.1	20	
Manganese	0.050	0.00025	mg/L	0.05000		101	85-115	0.09	20	
Nickel	0.051	0.00050	mg/L	0.05000		103	85-115	0.8	20	
Selenium	0.052	0.0025	mg/L	0.05000		104	85-115	2	20	
Thallium	0.050	0.00050	mg/L	0.05000		101	85-115	0.06	20	
Zinc	0.10	0.040	mg/L	0.1000		104	85-115	3	20	
Matrix Spike (1805069-MS1)		**Source: 18D0693-01**		Prepared & Analyzed: 05/07/2018						
Aluminum	0.239	0.0400	mg/L	0.1000	0.166	74	70-130			
Antimony	0.045	0.00050	mg/L	0.05000	0.00024	90	70-130			
Arsenic	0.056	0.00050	mg/L	0.05000	0.0035	104	70-130			
Barium	0.16	0.00050	mg/L	0.05000	0.12	94	70-130			
Beryllium	0.045	0.00025	mg/L	0.05000	0.000029	90	70-130			
Cadmium	0.047	0.00025	mg/L	0.05000	ND	94	70-130			
Chromium	0.049	0.00050	mg/L	0.05000	0.00052	98	70-130			
Cobalt	0.048	0.00025	mg/L	0.05000	0.00097	95	70-130			
Copper	0.051	0.00050	mg/L	0.05000	0.0020	98	70-130			
Lead	0.047	0.00050	mg/L	0.05000	0.00016	94	70-130			
Manganese	0.054	0.00025	mg/L	0.05000	0.0075	94	70-130			
Nickel	0.049	0.00050	mg/L	0.05000	0.0018	94	70-130			
Selenium	0.057	0.0025	mg/L	0.05000	ND	114	70-130			
Thallium	0.048	0.00050	mg/L	0.05000	0.000038	96	70-130			
Zinc	0.11	0.040	mg/L	0.1000	ND	109	70-130			

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1804261 - SM2540 C										
Duplicate (1804261-DUP1)		**Source: 18D0606-01**		Prepared: 04/26/2018 Analyzed: 04/27/2018						
Total Dissolved Solids (Residue, Filterable)	630	20	mg/L		630			0.3	5	
Duplicate (1804261-DUP2)		**Source: 18D0606-02**		Prepared: 04/26/2018 Analyzed: 04/27/2018						
Total Dissolved Solids (Residue, Filterable)	610	20	mg/L		620			0.8	5	
Batch 1804268 - E335.4										
Blank (1804268-BLK1)				Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	ND	0.10	mg/L							
LCS (1804268-BS1)				Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	2.0	0.10	mg/L	2.000		101	90-110			
LCS Dup (1804268-BSD1)				Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	2.0	0.10	mg/L	2.000		101	90-110	0.1	20	
Matrix Spike (1804268-MS1)		**Source: 18D0602-03**		Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	2.1	0.10	mg/L	2.000	ND	103	90-110			
Matrix Spike Dup (1804268-MSD1)		**Source: 18D0602-03**		Prepared: 04/26/2018 Analyzed: 04/30/2018						
Cyanide	2.0	0.10	mg/L	2.000	ND	98	90-110	5	20	
Batch 1804272 - E150.1										
Duplicate (1804272-DUP1)		**Source: 18D0662-02**		Prepared & Analyzed: 04/26/2018						
pH (pH Units)	7.8		-		7.8			0.1	200	H5
Temperature (°C)	21		-		21			2	200	H5
Batch 1805027 - SM2320B										
LCS (1805027-BS1)				Prepared & Analyzed: 05/03/2018						
Alkalinity, Total (As CaCO3)	240	2.0	mg/L	250.0		96	90-110			
LCS Dup (1805027-BSD1)				Prepared & Analyzed: 05/03/2018						
Alkalinity, Total (As CaCO3)	240	2.0	mg/L	250.0		96	90-110	0	10	
Matrix Spike (1805027-MS1)		**Source: 18D0606-02**		Prepared & Analyzed: 05/03/2018						
Alkalinity, Total (As CaCO3)	370	2.0	mg/L	250.0	130	96	85-115			
Matrix Spike Dup (1805027-MSD1)		**Source: 18D0606-02**		Prepared & Analyzed: 05/03/2018						
Alkalinity, Total (As CaCO3)	370	2.0	mg/L	250.0	130	95	85-115	0.5	10	
Batch 1805103 - SM2510 B										
LCS (1805103-BS1)				Prepared & Analyzed: 05/09/2018						
Conductivity	140	0.10	µmhos/cm	141.2		101	0-200			
LCS Dup (1805103-BSD1)				Prepared & Analyzed: 05/09/2018						
Conductivity	140	0.10	µmhos/cm	141.2		101	0-200	0.7	200	
Duplicate (1805103-DUP1)		**Source: 18E0192-01**		Prepared & Analyzed: 05/09/2018						
Conductivity	4.0	0.10	µmhos/cm		4.0			0	10	

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1805074 - SW8260B										
Blank (1805074-BLK1)				Prepared & Analyzed: 05/07/2018						
Benzene	ND	0.50	ug/L							
Carbon disulfide	ND	2.0	ug/L							
Ethylbenzene	ND	0.50	ug/L							
Toluene	ND	0.50	ug/L							
Xylenes, Total	ND	1.5	ug/L							
Surrogate: 4-Bromofluorobenzene	*25.0*		*ug/L*	*25.00*		*100*	*70-130*			
Surrogate: Dibromofluoromethane	*26.9*		*ug/L*	*25.00*		*107*	*70-130*			
Surrogate: Toluene-d8	*25.1*		*ug/L*	*25.00*		*100*	*70-130*			
LCS (1805074-BS1)				Prepared & Analyzed: 05/07/2018						
1,1-Dichloroethene	29		ug/L	25.00		114	70-130			
Benzene	27		ug/L	25.00		109	70-130			
Chlorobenzene	29		ug/L	25.00		115	70-130			
Toluene	25		ug/L	25.00		101	70-130			
Trichloroethene	26		ug/L	25.00		103	70-130			
Surrogate: 4-Bromofluorobenzene	*24.6*		*ug/L*	*25.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*25.6*		*ug/L*	*25.00*		*102*	*70-130*			
Surrogate: Toluene-d8	*24.8*		*ug/L*	*25.00*		*99*	*70-130*			
LCS Dup (1805074-BSD1)				Prepared & Analyzed: 05/07/2018						
1,1-Dichloroethene	27		ug/L	25.00		110	70-130	4	30	
Benzene	26		ug/L	25.00		104	70-130	5	30	
Chlorobenzene	26		ug/L	25.00		105	70-130	9	30	
Toluene	24		ug/L	25.00		96	70-130	5	30	
Trichloroethene	25		ug/L	25.00		98	70-130	4	30	
Surrogate: 4-Bromofluorobenzene	*24.4*		*ug/L*	*25.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*26.1*		*ug/L*	*25.00*		*104*	*70-130*			
Surrogate: Toluene-d8	*25.1*		*ug/L*	*25.00*		*100*	*70-130*			
Matrix Spike (1805074-MS1)	**Source: 18D0582-02**			Prepared & Analyzed: 05/07/2018						
1,1-Dichloroethene	27		ug/L	25.00	0.070	109	70-130			
Benzene	26		ug/L	25.00	0.020	104	70-130			
Chlorobenzene	26		ug/L	25.00	0.0	105	70-130			
Toluene	27		ug/L	25.00	3.5	95	70-130			
Trichloroethene	24		ug/L	25.00	0.040	97	70-130			
Surrogate: 4-Bromofluorobenzene	*24.4*		*ug/L*	*25.00*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*26.4*		*ug/L*	*25.00*		*106*	*70-130*			
Surrogate: Toluene-d8	*24.9*		*ug/L*	*25.00*		*100*	*70-130*			
Matrix Spike Dup (1805074-MSD1)	**Source: 18D0582-02**			Prepared & Analyzed: 05/07/2018						
1,1-Dichloroethene	27		ug/L	25.00	0.070	108	70-130	0.8	30	
Benzene	25		ug/L	25.00	0.020	101	70-130	2	30	
Chlorobenzene	26		ug/L	25.00	0.0	105	70-130	0.3	30	
Toluene	27		ug/L	25.00	3.5	95	70-130	0.1	30	
Trichloroethene	24		ug/L	25.00	0.040	95	70-130	2	30	
Surrogate: 4-Bromofluorobenzene	*24.7*		*ug/L*	*25.00*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*26.4*		*ug/L*	*25.00*		*106*	*70-130*			
Surrogate: Toluene-d8	*25.3*		*ug/L*	*25.00*		*101*	*70-130*			

Client: Brown & Caldwell
Project: PTF
Work Order: 18D0619
Date Received: 04/25/2018

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1804245 - E300.0 (2.1)										
Blank (1804245-BLK1)				Prepared & Analyzed: 04/25/2018						
Chloride	ND	1.0	mg/L							
Fluoride	ND	0.50	mg/L							
Nitrogen, Nitrate (As N)	ND	0.50	mg/L							
Nitrogen, Nitrite (As N)	ND	0.10	mg/L							
Sulfate	ND	5.0	mg/L							
LCS (1804245-BS1)				Prepared & Analyzed: 04/25/2018						
Chloride	12	1.0	mg/L	12.50		92	90-110			
Fluoride	2.0	0.50	mg/L	2.000		101	90-110			
Nitrogen, Nitrate (As N)	4.7	0.50	mg/L	5.000		95	90-110			
Nitrogen, Nitrite (As N)	2.3	0.10	mg/L	2.500		92	90-110			
Sulfate	12	5.0	mg/L	12.50		96	90-110			
LCS Dup (1804245-BSD1)				Prepared & Analyzed: 04/25/2018						
Chloride	12	1.0	mg/L	12.50		94	90-110	2	10	
Fluoride	2.0	0.50	mg/L	2.000		101	90-110	0.4	10	
Nitrogen, Nitrate (As N)	4.9	0.50	mg/L	5.000		98	90-110	3	10	
Nitrogen, Nitrite (As N)	2.4	0.10	mg/L	2.500		95	90-110	3	10	
Sulfate	12	5.0	mg/L	12.50		98	90-110	3	10	
Matrix Spike (1804245-MS1)		**Source: 18D0613-08**		Prepared & Analyzed: 04/25/2018						
Fluoride	3.7	0.50	mg/L	2.000	1.7	100	80-120			
Nitrogen, Nitrate (As N)	4.7	0.50	mg/L	5.000	0.22	89	80-120			
Matrix Spike (1804245-MS2)		**Source: 18D0625-01**		Prepared & Analyzed: 04/26/2018						
Nitrogen, Nitrate (As N)	5.0	0.50	mg/L	5.000	0.46	92	80-120			
Nitrogen, Nitrite (As N)	2.2	0.10	mg/L	2.500	ND	88	80-120			
Matrix Spike (1804245-MS3)		**Source: 18D0614-01RE1**		Prepared & Analyzed: 04/26/2018						
Chloride	17		mg/L	12.50	6.4	88	80-120			
Sulfate	28		mg/L	12.50	18	85	80-120			
Matrix Spike Dup (1804245-MSD1)		**Source: 18D0613-08**		Prepared & Analyzed: 04/25/2018						
Fluoride	3.7	0.50	mg/L	2.000	1.7	100	80-120	0.4	10	
Nitrogen, Nitrate (As N)	4.7	0.50	mg/L	5.000	0.22	90	80-120	0.6	10	
Matrix Spike Dup (1804245-MSD2)		**Source: 18D0625-01**		Prepared & Analyzed: 04/26/2018						
Nitrogen, Nitrate (As N)	5.1	0.50	mg/L	5.000	0.46	92	80-120	0.2	10	
Nitrogen, Nitrite (As N)	2.2	0.10	mg/L	2.500	ND	88	80-120	0.4	10	
Matrix Spike Dup (1804245-MSD3)		**Source: 18D0614-01RE1**		Prepared & Analyzed: 04/26/2018						
Chloride	18		mg/L	12.50	6.4	89	80-120	0.6	10	
Sulfate	29		mg/L	12.50	18	86	80-120	0.6	10	

TURNER LABORATORIES INC.

2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 18D0619 DATE 4/23/18 PAGE 1 OF 1

PROJECT NAME Florence Copper #

CONTACT NAME: Barb Sylvester

COMPANY NAME: Brown and Caldwell

ADDRESS: 2 N Central Ave, Suite 1600

CITY Phoenix STATE AZ ZIP CODE 85004

PHONE 602-567-3894 FAX

SAMPLER'S SIGNATURE [signature]

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	NUMBER OF CONTAINERS	Diss Metals - list (Field Filtered)	Total Uranium (not Filtered)	Inorganics - list	Cyanide (free)	Organics - list	G.Alpha, (RadSafety sub)	Uranium activity if G. Alpha >12	Ra226, 228, Ra-Tot (RadsSafety)	TPH-D (TestAmerica Sub)
R-09	4-23-18	1555		GW	10	X	X	X	X	X	X	X	X	X
8260 TB	4-23-18	1606		GW	1					X				
				GW										
				GW										
				GW										
				GW										
				GW										
				GW										
				GW										
				GW										
				GW										

1. RELINQUISHED BY:
Signature [signature]
Printed Name [illegible]
Firm [illegible]
Date/Time 4-23-18 1630

2. RECEIVED BY:
Signature UPS
Printed Name
Firm
Date/Time

3. RELINQUISHED BY:
Signature UPS
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Signature [signature]
Printed Name Joseph Catalano
Firm TURNER LABORATORIES INC.
Date/Time 4/23/18 1006

TURNAROUND REQUIREMENTS:
X Standard (approx10 days)*
___ Next day ___ 2 Day ___ 5 Day*
___ Email Preliminary Results To:
* Working Days

REPORT REQUIREMENTS:
X I. Routine Report
___ II. Report (includes DUP,MS,MSD, as required, may be charged as samples)
___ III. Date Validation Report (Includes All Raw Data)
Add 10% to invoice

INVOICE INFORMATION:
Account X Y ___ N
P.O. #
Bill to: Florence Copper

SAMPLE RECEIPT:
Total Containers
Temperature 2.2
☑ Wet Ice ☐ Blue Ice

*LEGEND
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

SPECIAL INSTRUCTIONS/COMMENTS:

Compliance Analysis: ☐ Yes ☐ No	Custody Seals ☐	Preservation Confirmation ☒
ADEQ Forms: ☐ Yes ☐ No	Container Intact ☒	Appropriate Head Space ☒
Mail ADEQ Forms: ☐ Yes ☐ No	COC/Labels Agree ☒	Received Within Hold Time ☒

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-101943-1
Client Project/Site: 18D0619

For:
Turner Laboratories, Inc.
2445 North Coyote Drive
Suite 104
Tucson, Arizona 85745

Attn: Kevin Brim

Authorized for release by:
5/16/2018 12:23:25 PM

Ken Baker, Project Manager II
(602)659-7624
ken.baker@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Definitions/Glossary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
Q9	Insufficient sample received to meet method QC requirements.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Job ID: 550-101943-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-101943-1

Comments
No additional comments.

Receipt
The sample was received on 4/27/2018 10:50 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8º C.

GC Semi VOA
Method(s) 8015D: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD) associated with preparation batch 550-145985 and analytical batch 550-146884. Affected samples have been added a Q9 qualifier. 18D0619-01 (550-101943-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 3510C.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Sample Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-101943-1	18D0619-01	Water	04/23/18 15:55	04/27/18 10:50

Detection Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Client Sample ID: 18D0619-01

Lab Sample ID: 550-101943-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
ORO (C22-C32)	0.21	Q9	0.20		mg/L	1		8015D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Client Sample ID: 18D0619-01
Date Collected: 04/23/18 15:55
Date Received: 04/27/18 10:50

Lab Sample ID: 550-101943-1
Matrix: Water

Method: 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
ORO (C22-C32)	0.21	Q9	0.20		mg/L		04/30/18 14:16	05/10/18 23:29	1
DRO (C10-C22)	ND	Q9	0.10		mg/L		04/30/18 14:16	05/10/18 23:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*79*		*10 - 150*	*04/30/18 14:16*	*05/10/18 23:29*	*1*

Surrogate Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Method: 8015D - Diesel Range Organics (DRO) (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	OTPH (10-150)							
550-101943-1	18D0619-01	79							
LCS 550-145985/2-A	Lab Control Sample	79							
LCSD 550-145985/3-A	Lab Control Sample Dup	79							
MB 550-145985/1-A	Method Blank	65							

Surrogate Legend

OTPH = o-Terphenyl (Surr)

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 550-145985/1-A
Matrix: Water
Analysis Batch: 146884

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 145985

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
ORO (C22-C32)	ND		0.20		mg/L		04/30/18 14:15	05/11/18 11:16	1
DRO (C10-C22)	ND		0.10		mg/L		04/30/18 14:15	05/11/18 11:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*65*		*10 - 150*	*04/30/18 14:15*	*05/11/18 11:16*	*1*

Lab Sample ID: LCS 550-145985/2-A
Matrix: Water
Analysis Batch: 146884

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 145985

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
ORO (C22-C32)			1.60	1.59		mg/L		99	69 - 107		
DRO (C10-C22)			0.400	0.450		mg/L		113	42 - 133		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl (Surr)	*79*		*10 - 150*

Lab Sample ID: LCSD 550-145985/3-A
Matrix: Water
Analysis Batch: 146884

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 145985

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
ORO (C22-C32)			1.60	1.59		mg/L		100	69 - 107	0	20
DRO (C10-C22)			0.400	0.447		mg/L		112	42 - 133	1	22

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl (Surr)	*79*		*10 - 150*

QC Association Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

GC Semi VOA

Prep Batch: 145985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-101943-1	18D0619-01	Total/NA	Water	3510C	
MB 550-145985/1-A	Method Blank	Total/NA	Water	3510C	
LCS 550-145985/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 550-145985/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 146884

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-101943-1	18D0619-01	Total/NA	Water	8015D	145985
MB 550-145985/1-A	Method Blank	Total/NA	Water	8015D	145985
LCS 550-145985/2-A	Lab Control Sample	Total/NA	Water	8015D	145985
LCSD 550-145985/3-A	Lab Control Sample Dup	Total/NA	Water	8015D	145985

Lab Chronicle

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Client Sample ID: 18D0619-01
Date Collected: 04/23/18 15:55
Date Received: 04/27/18 10:50

Lab Sample ID: 550-101943-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			145985	04/30/18 14:16	REM	TAL PHX
Total/NA	Analysis	8015D		1	146884	05/10/18 23:29	TC1	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

Accreditation/Certification Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Laboratory: TestAmerica Phoenix

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arizona	State Program	9	AZ0728	06-09-18

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: Turner Laboratories, Inc.
Project/Site: 18D0619

TestAmerica Job ID: 550-101943-1

Method	Method Description	Protocol	Laboratory
8015D	Diesel Range Organics (DRO) (GC)	SW846	TAL PHX
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL PHX

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

SUBCONTRACT ORDER

Turner Laboratories, Inc.

101943

18D0619

SENDING LABORATORY:	RECEIVING LABORATORY:
Turner Laboratories, Inc.	TestAmerica Phoenix
2445 N. Coyote Drive, Ste #104	4625 East Cotton Center Boulevard Suite 189
Tucson, AZ 85745	Phoenix, AZ 85540
Phone: 520.882.5880	Phone :(602) 437-3340
Fax: 520.882.9788	Fax:
Project Manager: Kevin Brim	Please CC Kevin Brim Kbrim@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
-01			
Sample ID: 18D0619-01 Drinking Water	**Sampled:04/23/2018 15:55**		
8015D Sub	04/30/2018 15:55		8015D DRO and ORO Paramaters Only
Containers Supplied:			

8015D Sub
o-Terphenyl
C10-C32 (Total)
C22-C32 (Oil Range Organics)
C10-C22 (Diesel Range Organics)
C6-C10 (Gasoline Range Organics)

550-101943 Chain of Custody

3,8°C UPS GR

TA-PHX

Released By	Date	Received By	Date
	4/24/18		4-27-18 1050
Released By	Date	Received By	Date

Login Sample Receipt Checklist

Client: Turner Laboratories, Inc.

Job Number: 550-101943-1

Login Number: 101943
List Number: 1
Creator: Gravlin, Andrea

List Source: TestAmerica Phoenix

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	False	Check done at department level as required.

Radiation Safety Engineering, Inc.
3245 N. WASHINGTON ST. • CHANDLER, ARIZONA 85225-1121 (480) 897-9459
Website: www.radsafe.com FAX (480) 892-5446

Radiochemical Activity in Water (pCi/L)

Turner Laboratories
2445 N. Coyote Drive, Ste. 104
Tucson, AZ 85745

Sampling Date: April 23, 2018
Sample Received: May 01, 2018
Analysis Completed: May 22, 2018

Sample ID	Gross Alpha Activity Method 600/00-02 (pCi/L)	Uranium Activity Method ASTM D6239 (pCi/L)	Adjusted Gross Alpha (pCi/L)	Radium 226 Activity Method GammaRay HPGE (pCi/L)	Radium 228 Activity Method GammaRay HPGE (pCi/L)	Total Radium (pCi/L)
18D0619-01	17.7 ± 0.9	12.9 ± 1.2	4.8 ± 1.5	3.1 ± 0.3	3.1 ± 0.4	6.2 ± 0.5
Date of Analysis	5/2/2018	5/21/2018	5/21/2018	5/4/2018	5/4/2018	5/4/2018

Robert L. Metzger, Ph.D., C.H.P. 5/22/2018
Laboratory License Number AZ0462 Date

Radiation Safety Engineering, Inc.
3245 N. WASHINGTON ST. • CHANDLER, ARIZONA 85225-1121 (480) 897-9459
Website: www.radsafe.com FAX (480) 892-5446

Isotopic Uranium Analysis

Turner Laboratories
2445 N. Coyote Drive, Ste. 104
Tucson, AZ 85745

Sampling Date: April 23, 2018
Sample Received: May 01, 2018
Uranium Analysis Date: May 21, 2018

Sample No.	^{238}U	^{235}U	^{234}U	Total	
18D0619-01	6.0 ± 0.6	0.280 ± 0.004	6.6 ± 0.6	12.9 ± 1.2	Activity (pCi/L)
	17.9 ± 1.7	0.131 ± 0.002	0.00106 ± 0.00010	18.0 ± 1.7	Content (µg/L)
	Comments:				

Robert L. Metzger, Ph.D., C.H.P. 5/22/2018
Date

Laboratory License Number AZ0462

Arizona Department of Environmental Quality

Drinking Water Radionuclides-Adjusted Gross Alpha, Radium 226 & 228, Uranium Analysis Report

Samples To Be Taken At Entry Point Into Distribution System (EPDS) Only

PWS ID#: AZ04 _____ PWS Name: _____

April 23, 2018 (Sample Date) 15:55 (Sample Time) (24 hour clock) _____ (Owner/Contact Person)

_____ (Owner/Contact Fax Number) _____ (Owner/Contact Phone Number)

Sample Collection Point

☐ EPDS # _____

Compliance Sample Type:

☐ Reduced Monitoring — Date Q1 collected: _____

☐ Quarterly — Date Q2 collected: _____

☐ Composite of four quarterly samples — Date Q3 collected: _____

Date Q4 collected: _____

*****RADIOCHEMICAL ANALYSIS*****

>>>To be filled out by laboratory personnel<<<

*****Combined Uranium must be reported in micrograms per liter*****

Analysis Method	MCL	Reporting Limit	Contaminant Name	Cont. Code	Analyses Run Date	Result		Exceed MCL
	15 pCi/L		Adjusted Gross Alpha	4000	5/21/2018	4.8 ± 1.5		
600/00-02		3 pCi/L	Gross Alpha	4002	5/2/2018	17.7 ± 0.9		
7500 - Rn			Radon	4004				
ASTM D6239	30 µg/L	1 µg/L	Combined Uranium	4006	5/21/2018	18.0 ± 1.7	µg/L	
			Uranium 234	4007	5/21/2018	0.00106 ± 0.00010		
			Uranium 235	4008	5/21/2018	0.131 ± 0.002		
			Uranium 238	4009	5/21/2018	17.9 ± 1.7		
	5 pCi/L	1 pCi/L	Combined Radium (226,228)	4010	5/4/2018	6.2 ± 0.5		X
GammaRay HPGE		1 pCi/L	Radium 226	4020	5/4/2018	3.1 ± 0.3		
GammaRay HPGE		1 pCi/L	Radium 228	4030	5/4/2018	3.1 ± 0.4		

*****LABORATORY INFORMATION*****

>>>To be filled out by laboratory personnel<<<

Specimen Number: RSE60312

Lab ID Number: AZ0462

Lab Name: Radiation Safety Engineering, Inc.

Printed Name and Phone Number of Laboratory Contact: Robert L. Metzger, Ph.D., C.H.P. (480) 897-9459

Comments: 18D0619-01

Authorized Signature: Robt L. Metzger

Date Public Water System Notified: _____

DWAR 6: 11/2007

SUBCONTRACT ORDER

Turner Laboratories, Inc.

18D0619

SENDING LABORATORY:

Turner Laboratories, Inc.
2445 N. Coyote Drive, Ste #104
Tucson, AZ 85745
Phone: 520.882.5880
Fax: 520.882.9788
Project Manager: Kevin Brim

RECEIVING LABORATORY:

Radiation Safety Engineering, Inc.
3245 N. Washington St.
Chandler, AZ 85225-1121
Phone :(480) 897-9459
Fax: (480) 892-5446
Please CC Kevin Brim Kbrim@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
Sample ID: 18D0619-01 Drinking Water Sampled:04/23/2018 15:55			
Radiochemistry, Gross Alpha	10/20/2018 15:55		Analyze Uranium and Adjusted Alpha if G. Alpha is > 12
Radiochemistry, Radium 226/228	05/23/2018 15:55		
Containers Supplied:			

H 60312

Released By	Date	Received By	Date
[signature]	4/30/18 16:00	UPS	4/30/18 16:00
Released By	Date	Received By	Date

APPENDIX D

Well Completion Documentation

PIPE TALLY

Project Name.: TCI	Project No.: 129687
Well No.: R-26	Date: 11/29/17
Location: Florence, AZ	Pipe Talley for: Overburden Casing
Total Depth: 500	Geologist: Z. Smith C Gaust

Type of Connections: ☑ Welded ☐ T+C ☐ Flush Thread ☐ Other Collared

Pipe	✓	Length (ft)	Length Σ (ft)	Pipe Type	Dist. from sensor bottom to bottom of pipe (feet)	Sensor Type (ACD, CS, ERT)	Sensor ID	Wire Lead ID	Depth of Sensor (feet bgs)
1	✓	40.30	40.30	LCS Fusion Bonded		BEP			
2	✓	40.03	80.33	LCS					
3		40.02	120.35						
4	✓	40.03	160.38						
5	✓	40.02	200.40						
6	✓	40.03	240.43						
7	✓	40.03	280.46						
8	✓	40.04	320.50						
9	✓	40.04	360.54						
10	✓	40.01	400.55						
11	✓	40.03	440.58						
12	✓	40.04	480.62						
13	✓	40.04	520.66	↓					

Notes:
1- Fusion Bonded Polyethylene form Carbon Steel 14.0" OD w/ 0.312" wall beveled End

Larrick Shoe = 2.0 ft

Cold Carbon Steel 14" OD x 0.312" wall Fusion Bond 4 Collars

Centralizers placed every 40' starting at the bottom of pipe #2.

SUMMARY OF TALLY

Total Length tallied:	520.66
Casing Stick-Up:	20.66 ABS
Length of Casing Cut-Off:	
Bottom of Well:	500.00
Screened Interval:	—
Total Screen in Hole:	—

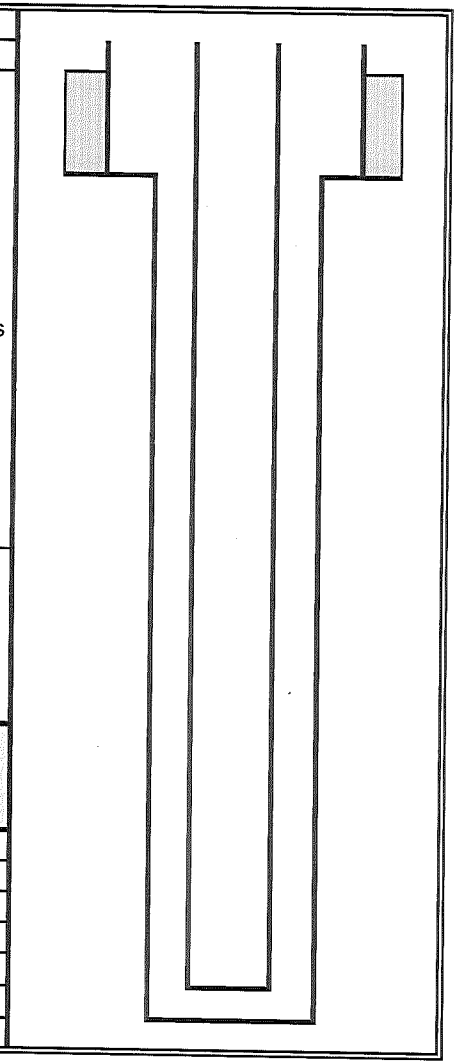
Sensor Types: Annular Conductivity Device (ACD), installed as pairs with 3 ft spacing
Conductivity Sensor (CS) 4 sensors with sing lead 20 ft spacing
Electrical Resistivity Tomography (ERT)

HALEY ALDRICH

~~RHT~~ ELEVATOR HEIGHT 7.0 ft
ci

ESTIMATED ANNULAR MATERIAL RECORD

Project Name: FCI **Project #.:** 29687-007 **Date:** 11-24-17
Well No.: R-06 **Geologist:** C. GIUSTI



ANNULAR VOLUME CALCULATIONS

Total Depth of Borehole [T]:	507 feet	Total Cased Depth:	500.00 feet
Borehole Diameter [D]:	20 inches	Rat Hole Volume [R=(D^2) 0.005454*L_r]:	15.2 Ft^3
Screen Length [L_s]:	— feet	Rat Hole Length [L_r]	7 feet
Screen Diameter [d_s]:	— inches	Camera Tube Length [L_{ct}]	— feet
Casing Length [L_c]	500.00 feet	Camera Tube Diameter [d_{ct}]	— inches
Casing Diameter [d_c]	14 inches		

Screen Annular Volume (A_s): (D^2-d_s^2) 0.005454 = — Ft^3/Lin. Ft
Casing Annular Volume (A_c): (D^2-d_c^2) 0.005454 = 1.11 Ft^3/Lin. Ft
Casing/Cam.Tube Annular Volume (A_{c+ct}): (D^2-d_c^2-d_{ct}^2) 0.005454 = — Ft^3/Lin. Ft

EQUATIONS

2,700 lbs. Silica Sand = 1 cubic yard = 27 cubic feet
[1] Volume of bag (Ft^3) = bag weight/100
[2] Calculated depth = Previous Calculated depth - (v/A)

Bentonite Sack = 0.69 ft^3
Silica Sand Super Sack = 3000 lbs.

No.	✓	Weight of Bag (lbs.)	Volume of Bag[1] (v) (ft^3)	Total Vol. of Bags (ft^3)	Calculated Depth[2] (ft bls)	Tagged Depth (ft bls)	Comments
1			746.7	746.7		SURFACE	TYPE V. CEMENT

0-40': 2.07 ft^3/Lin Ft x 40 = 82.9 ft^3
40-500': 1.11 ft^3/Lin Ft x 460 = 510.6 ft^3
500-507': 2.18 ft^3/Lin Ft x 7 = 15.2 ft^3
Σ = 608.7 ft^3 = ~108.5 BARRELS

SLURRY VOLUME IN = 133 BARRELS = 746.7 Ft^3
AVERAGE WEIGHT = 14.1 lbs/gal

+25% CALC VOLUME

CALIPER LOG EST VOLUME = 22.08 yd^3 = 596.2 ft^3 = ~106.2 BARRELS

PIPE TALLY

Project Name.:	EG1 PTF	Project No.:	129687-007
Well No.:	R-06	Date:	3-27-18
Location:	Florence, AZ	Pipe Talley for:	WELL INSTAL
Total Depth:	1210	Geologist:	C. Gilbert/S. Vaney

Type of Connections: ☐ Welded ☐ T+C ☐ Flush Thread ☐ Other

Pipe	✓	Length (ft)	Length Σ (ft)	Pipe Type	Dist. from sensor bottom to bottom of pipe (feet)	Sensor Type (ACD, CS, ERT)	Sensor ID	Wire Lead ID	Depth of Sensor (feet bgs)
1	✓	0.37	0.37	SS END CAP					
2	✓*	19.99	20.36	0.090 PVC SCRN					
3	✓	19.99	40.35		9.45	ERT	12		1170
4	✓*	20.00	60.35						
5	✓	20.00	80.35						
6	✓*	20.00	100.35		14.42	ERT	11		1105.04
7	✓	20.01	120.36						
8	✓*	20.00	140.36						
9	✓*12	19.99	160.35		19.48	ERT	10		1039.97
10	✓	19.99	180.34						
11	✓	19.99	200.33						
12	✓*	19.99	220.32						
13	✓	19.99	240.31		4.38	ERT	9		975.11
14	✓*	19.99	260.30						
15	✓	20.00	280.30						
16	✓*	19.99	300.29		9.46	ERT	8		910.05
17	✓	20.04	320.33	PVC BLANK					
18	✓*	19.99	340.32	0.090 PVC SCRN					
19	✓	19.99	360.31		14.44	ERT	7		845.05
20	✓*	19.99	380.30						
21	✓	19.99	400.29						
22	✓*	19.99	420.28		19.41	ERT	6		780.11
23	✓	20.00	440.28						
24	✓*	20.00	460.28						
25	✓*17	20.00	480.28		~~4.13~~	~~ERT~~	~~5~~ 8x		
26	✓	20.00	500.28		4.13	ERT	5		715.40
27	✓	20.00	520.28						
28	✓*	20.00	540.28						
29	✓*17	20.04	560.32	PVC BLANK	8.74	ERT	4		650.79
30	✓*17	20.00	580.32	0.090 PVC SCRN	4.50	Transducer			634.99

SF

Notes:
1 - 316 Stainless steel End cap
PVC SCREEN: SCH 80 0.090 SLOT
5.56"OD 4.77 ID
PVC BLANK - SCH 80 5.56"OD, 4.77"ID
FRP FIBERGLASS: 5.44 OD 4.74" ID
316 - 316 Stainless steel PVC TO FRP TRANSITION PIECE
Sensor distance measured from bottom of sensor

SUMMARY OF TALLY	
Total Length tallied:	1200.96
Casing Stick-Up:	
Length of Casing Cut-Off:	
Bottom of Well:	1199.81
Screened Interval:	
Total Screen in Hole:	

Sensor Types: Annular Conductivity Device (ACD), installed as pairs with 3 ft spacing
Conductivity Sensor (CS) 4 sensors with sing lead 20 ft spacing
Electrical Resistivity Tomography (ERT)

* = Stainless steel centralizer @ 40' spacing
✱ - Centralizer at bottom of joint
✱# - Centralizer # feet from bottom of joint

HALEY ALDRICH

HALEY ALDRICH

PIPE TALLY

Project Name.:	ECL RTF	Project No.:	129687-007
Well No.:	R-606	Date:	3-27-18
Location:	Florence, AZ	Pipe Talley for:	WELL INSTAL
Total Depth:	1210	Geologist:	C. GRIST / S. Raney

Type of Connections: ☐ Welded ☐ T+C ☐ Flush Thread ☐ Other

Pipe	✓	Length (ft)	Length Σ (ft)	Pipe Type	Dist. from sensor bottom to bottom of pipe (feet)	Sensor Type (ACD, CS, ERT)	Sensor ID	Wire Lead ID	Depth of Sensor (feet bgs)
31	✓	20.00	600.32	0.090 PVC SCRN					
32	✓	20.01	620.33	↓	13.92	ERT	3		585.57
33	✓	20.00	640.33						
34	✓	20.00	660.33						
35	✓	20.00	680.33	↓	18.90	ERT	2		520.58
36	✓	0.50	680.83	SS PVC/FRP					
37	✓	29.08	709.91	FRP					
38	✓	29.04	738.95	↓					
39	✓	29.08	768.03	↓	5.36	ERT	1		455.50
40	✓	29.06	797.09	↓					
41	✓	29.05	826.14	↓					
42	✓	29.03	855.17	↓					
43	✓	29.07	884.24	↓					
44	✓	29.02	913.26	↓					
45	✓	29.10	942.36	↓					
46	✓	29.06	971.42	↓					
47	✓	29.08	1000.50	↓					
48	✓	28.98	1029.48	↓					
49	✓	29.26	1058.74	↓					
50	✓	29.23	1087.97	↓					
51	✓	29.11	1117.08	↓					
52	✓	29.14	1146.22	↓					
53	✓	29.23	1175.45	↓					
54	✓	10.18	1185.63	↓					
55	✓	10.18	1195.81	↓					
56		5.15	1200.96	↓					
57		0.90	1201.86	TRP TEMP	measured to bottom of collar + 0.7 to tap				

Notes:
Centralizers every ~80'

SUMMARY OF TALLY

Total Length tallied:	1200.96
Casing Stick-Up:	
Length of Casing Cut-Off:	
Bottom of Well:	1199.81
Screened Interval:	
Total Screen in Hole:	

Sensor Types: Annular Conductivity Device (ACD), installed as pairs with 3 ft spacing
Conductivity Sensor (CS) 4 sensors with sing lead 20 ft spacing
Electrical Resistivity Tomography (ERT)

HALEY ALDRICH

HALEY ALDRICH

Casing Layout

Project Name.:	Florence Copper INC	**Project No.:**	129687-007
Well No.:	R-06	**Date:**	3.27.18
Location:	Florence AZ	**Layout for:**	Lower
Total Depth:	###	**Geologist:**	C. Giusti

Pipe Length		Depth BGS
		759.53
20.00	23	779.53
19.99	22	799.52
19.99	21	819.51
19.99	20	839.50
19.99	19	859.49
19.99	18	879.48
20.04	17	899.52
19.99	16	919.51
20.00	15	939.51
19.99	14	959.50
19.99	13	979.49
19.99	12	999.48
19.99	11	1019.47
19.99	10	1039.46
19.99	9	1059.45
20.00	8	1079.45
20.01	7	1099.46
20.00	6	1119.46
20.00	5	1139.46
20.00	4	1159.46
19.99	3	1179.45
19.99	2	1199.44
0.37	1	1199.81

Pipe Length		Depth BGS
		228.39
29.06	46	257.45
29.10	45	286.55
29.02	44	315.57
29.07	43	344.64
29.03	42	373.67
29.05	41	402.72
29.06	40	431.78
29.08	39	460.86
29.04	38	489.90
29.08	37	518.98
0.50	36	519.48
20.00	35	539.48
20.00	34	559.48
20.00	33	579.48
20.01	32	599.49
20.00	31	619.49
20.00	30	639.49
20.04	29	659.53
20.00	28	679.53
20.00	27	699.53
20.00	26	719.53
20.00	25	739.53
20.00	24	759.53

Pipe Length		Depth BGS
	69	
	68	
	67	
	66	
	65	
	64	
	63	
	62	
	61	0.00
	60	0.00
	59	0.00
	58	0.00
	57	-1.15
5.15	56	4.00
10.18	55	14.18
10.18	54	24.36
29.23	53	53.59
29.14	52	82.73
29.11	51	111.84
29.23	50	141.07
29.26	49	170.33
28.98	48	199.31
29.08	47	228.39

SENSOR DETAILS

Sensor Type	Sensor ID	Pipe #	Distance from Bottom of Sensor to Bottom of Pipe	Depth of Sensor (BGS)
ERT	12	3	9.45	1170.00
ERT	11	6	14.42	1105.04
ERT	10	9	19.48	1039.97
ERT	9	13	4.38	975.11
ERT	8	16	9.46	910.05
ERT	7	19	14.44	845.05
ERT	6	22	19.41	780.11
ERT	5	26	4.13	715.40
ERT	4	29	8.74	650.79
ERT	3	32	13.92	585.57
ERT	2	35	18.90	520.58
ERT	1	39	5.36	455.50
Transducer		30	4.50	634.99
				#REF!
				#REF!
				#REF!

Pipe Number	Type
1	SS End Cap
2 - 16	PVC SCH 80 Screen 0.080
17	PVC SCH 80 Blank
18-28	PVC SCH 80 Screen 0.080
29	PVC SCH 80 Blank
30-35	PVC SCH 80 Screen 0.080
36	PVC SCH 80/SCH 40 Blank
37-56	5" FRP

Notes:

HALEY ALDRICH

3a-7

d13

ESTIMATED ANNULAR MATERIAL RECORD

Project Name: FC1 **Project #.:** 129697-007 **Date:** 3-28-17
Well No.: R-06 **Geologist:** C. Grosh / S. Varney

ANNULAR VOLUME CALCULATIONS

Total Depth of Borehole [T]:	1210 feet	Total Cased Depth:	1200 feet
Borehole Diameter [D]:	12.25 inches	Rat Hole Volume [R=(D²) 0.005454*L_r]:	8.18 Ft³
Screen Length [L_s]:	640 feet	Rat Hole Length [L_r]	10 feet
Screen Diameter [d_s]:	5.56 inches	Camera Tube Length [L_ct]	— feet
Casing Length [L_c]	528 feet	Camera Tube Diameter [d_ct]	— inches
Casing Diameter [d_c]	5.44 inches		

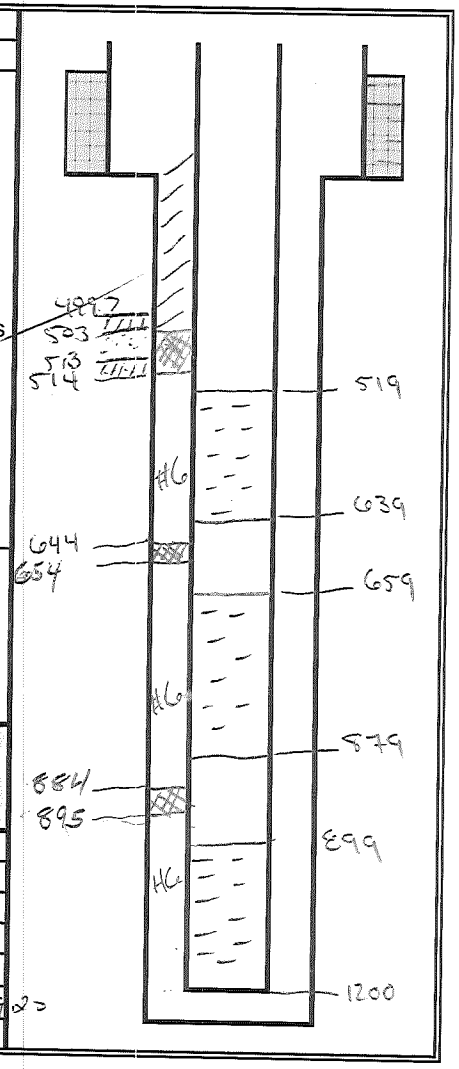
Screen Annular Volume (A_s): $(D^2-d_s^2)$ 0.005454 = 0.65 ~~0.69~~ Ft³/Lin. Ft
Casing Annular Volume (A_c): $(D^2-d_c^2)$ 0.005454 = 0.67 Ft³/Lin. Ft
Casing/Cam.Tube Annular Volume (A_{c+ct}): $(D^2-d_c^2-d_{ct}^2)$ 0.005454 = — Ft³/Lin. Ft

EQUATIONS

2,700 lbs. Silica Sand = 1 cubic yard = 27 cubic feet
[1] Volume of bag (Ft^3) = bag weight/100
[2] Calculated depth = Previous Calculated depth - (v/A)

Bentonite Sack = 0.69 ft³
Silica Sand Super Sack = 3000 lbs.

No.	✓	Weight of Bag (lbs.)	Volume of Bag[1] (v) (ft³)	Total Vol. of Bags (ft³)	Calculated Depth[2] (ft bls)	Tagged Depth (ft bls)	Comments
1	✓	3000	30	30	1166	NA	SUPER SACK (1) #6
2	✓	3000	30	60	1120	1127	SS #6 (2) TREMIE 1135
3	✓	3000	30	90	1074	NA	SS #6 (3) " 1060
4	✓	3000	30	120	1028	1007	SS #6 (4) " 1026
5	✓	3000	30	150	982 / 961	969	SS #6 (5) " 980
6	✓	~~3000~~ 1560	~~30~~ 15	~~150~~ 165	958 / 936	922.5	SS #6 (6) 1/2 " 960 / 922
7	✓	750	7.5	172.5	947 / 911	905	SS #6 (6) 1/4 " 894



HALEY ALDRICH

ESTIMATED ANNULAR MATERIAL RECORD (Continued)

Project Name: FCI PTF **Project No.:** 129687-007 **Geologist:** S. Kaney
Well No.: 2-06 **Date:** 3/28/18

No.	✓	Weight of Bag (lbs.)	Volume of Bag[1](v) (ft³)	Total Vol. of Bags (ft³)	Calculated Depth[2] (ft bls)	Tagged Depth (ft bls)	Comments	
								Tremme
8	✓	67	0.67	175.85	942 / 900	898.6	#6 - 5 gal buckets x 5	874
9	✓	67	0.67	177.85	939 / 895	895	#6 - 5 gal buckets x 3	
		–	–	–	–	917	Swab 1100 - 1200 x 20 min	
		–	–	–	–	917	Swab 1100 - 1200 x 15 min	
		–	–	–	–	916	Swab 1000 - 1100 x 20 min	
		–	–	–	–	916	Swab 1000 - 1100 x 15 min	
10	✓	750	7.5	185.35	927 / 904	909	#6 - 1/4 Supersack (6)	
11	✓	67	0.67	193.4	915 / 897	895.5	#6 - 5 gal buckets x 12 (7)	
			–	–	–	901	Swab 900 - 1000 x 20 min	
12	✓	67	0.67	196.8	910 / 896	895	#6 - 5 gal buckets x 5 (7)	
		–	–	–	–	895	Swab 900 - 1000 x 15 min	
		–	–	–	– 895.3	~~896.7~~	Swab 900 - 1000 x 10 min	
13	✓	50	0.5	201.8	902 / 887.3	~~892~~ (884)	#60 - 50 lb bag x 10	~~880~~ 88
14	✓	1500	15	216.4	860	NA	#6 1/2 super sack (7)	840
15	✓	3000	30	246.4	814	NA	#6 super sack (8)	795 ~~800~~
16	✓	3000	30	274.8	768	749	#6 super sack (9)	755 ~~775~~
17		3000	30	306.8	705	660	#6 super sack (10)	
~~18~~						676	SWAB x20 MIN 780-880 x20 MIN 660-780	
18	✓	1000	10	314.8	688 / 661	654	1/3 SS #6	655
~~19~~						658	SWAB x15 min 780-880, 660-780 x15 min	635
							SWAB x15 min 78-880 660-780 x15 min	
19	✓	500	5	321.8	646	646.5	x10 50 lbs bgs #60	

Notes:

HALEY ALDRICH

ESTIMATED ANNULAR MATERIAL RECORD (Continued)

Project Name: FCI PTF **Project No.:** 129687-007 **Geologist:** C. Gust
Well No.: R-06 **Date:** 3-29-18

No.	✓	Weight of Bag (lbs.)	Volume of Bag[1](v) (ft³)	Total Vol. of Bags (ft³)	Calculated Depth[2] (ft bls)	Tagged Depth (ft bls)	Comments
20	✓	150	1.5	323.3	~~660~~ 644	644	x3 50 lbs bgs #60 — TREMIE 640
21	✓	3000	30	353.3	598	NA	super sack #6 sand — 555 595
~~22~~		~~3000~~	~~30~~	~~383.3~~	~~552~~	(2)	~~super sack #6 sand~~ — 520
22	✓	1500	15	368.3	575	519	Super sack #6 Sand 1/2
23	✓	67	0.67	371.65	570/514	510.5	#6 - 5 gal buckets x 5 — 493
		—	—	—	—	520	swab 580-640 x 20min
		—	—	—	—	521.4	swab 580-640 x 15min
		—	—	—	—	521.4	Swab 580-640 x 10min
24	✓	67	0.67	377.01	562/513	512	#6 gravel - 5 gal buckets x 8
		—	—	—	—	511.9	Swab 510-580 x 20min
		—	—	—	—	515	Swab 570-580 x 15 min
		—	—	—	—	515	Swab 570-580 x 15 min
25	✓	67	0.67	378.4	560/513	514	#6 gravel - 5 gal buckets x 2
26	✓	67	0.67	379	—	513	one bucket (5 gal) bentonite PEL PLUG
27	✓	50	0.5	386.5	550.5/503.5	503	#60 - 50 lb bags x 13
28	✓	67	0.67	387.2	—	499.7	one bucket (5 gal) bentonite PEL PLUG
						105 surface	Cement — Tremie 473

Notes: ~~based on casing ft~~

HALEY ALDRICH

CEMEX

58776427

Plant:	Begin Loading:	To Job:	Arrive Job:	Start Unload:	Finish Unload:	Leave Job:	Return Plant:

Customer Code: Customer Name: Customer Job Number: Order Code / Date:

Project Code: Project Name: Project P.O. Number: Order P.O. Number:

Ticket Date: Delivery Address: Map Page: Map/Row/Column:

Delivery Instructions: Dispatcher:

Ticket Number:

Due On Job:	Slump:	Truck Number:	Driver Number:	Driver Name:	End Use:

LOAD QUANTITY	CUMULATIVE QUANTITY	ORDERED QUANTITY	MATERIAL CODE	PRODUCTION DESCRIPTION	UOM	UNIT PRICE	AMOUNT

☐ Cash ☐ Check ☐ Charge	Check # / Auth Code:	Signature of Driver Receiving Cash:	Cash Received:	Total COD Order Amount to Collect Without Standby Charges:

Comments:

WATER ADDED: _____ GAL YARDS IN DRUM: _____ WHEN ADDED.

_____ SIGNATURE

CURB LINE CROSSED AT OWNER'S/AGENT'S REQUEST:

_____ SIGNATURE

❑ LOAD WAS TESTED BY: _____

Notice: Our drivers will make every effort to place materials where the customer designates, but the Company assumes no responsibility for damages inside curb or property line. Customer agrees to the terms of sale and delivery and accepts concrete as is. Due to important factors which are out of our control after delivery, this Company will not accept any responsibility for the finished results. No credit for returned concrete. Buyers exceptions and claims shall be deemed waived unless made to us in writing within one business day after the receipt of materials.

SPECIAL TERMS: Any water added is at customers own risk. If water is added on job, concrete strength is no longer guaranteed. **WARNING**: Product may cause skin and/or eye irritation. **CAUTION**: Material may be hazardous to your safety and health. Please refer to the backside of this ticket for important safety handling information, and to the material safety data sheets for additional information.

AUTHORIZED SIGNATURE:

Ⓧ

68UNIVERSAL

INVOICE

42580466 41072327

BASIC ENERGY SERVICES

3451 LeTourneau
Gillette, WY 82718
307-682-5258

Cementing Ticket No. 1719 21360

Date	Customer Order No.		Sect.	Twp.	Range	Truck Called Out	On Location	Job Began	Job Completed
11-24-17						7 a.m.	8 a.m.	13:35	15:00

Owner	Contractor	Charge To
Florance Copper Mine	Hydro Resources	Hydro West

Mailing Address	City	State
		1011561

Well No. & Form	Place	County	State
R 06	copper mine	Pinal	AZ

Depth of Well	Depth of Job	Casing (New / Used) Size / Weight	Size of Hole / Amt. and Kind of Cement	Cement Left in casing by / Request Necessity
505	500	Size 14 3/4	20 inch / 2/5	0 feet

Kind of Job: surface

Drillpipe / Tubing 2 7/8 (Rotary / Cable) Truck No.

Price Reference No.
Price of Job 2541
Second Stage
Pump Truck Mileage 3825
P.U. Mileage 765
Other Charges
Total Charges 7,131.00

Remarks:
safety meeting
hook up to tubing
pump 10 bbls ahead
pump 540 sks of type 2 5
un hook hose from tubing
wash up in cellar
released for the day

THANK YOU

Cementer Bryan Lead Yield 1.38 Lead Wt. 14.6 Lead Water 6.8 SV 133

Helper Santiago Chavez Tail Yield Tail Wt. Lead Water SV

District Gillette State Wy

The above job was done under supervision of the owner, operator, or his agent whose signature appears below.

Agent of contractor or operator

Sales Ticket for Materials Only

QUANTITY SACKS	BRAND AND TYPE	PRICE	TOTAL
16	Crew subsistance	500	8,000.00
8	Transportaton of cement	150	1,200.00
			0.00
			0.00
			0.00
			0.00
			0.00
			0.00
			0.00
			0.00
			0.00
			0.00
			0.00
			0.00
Plugs			0.00

Equipment #	HRS				
28983	1.5	540	Handling & Dumping	2.44	1,317.60
84127	1		Mileage		0.00
			Sub Total		17,648.60
			Discount		
			Sales Tax		
Signature of operator			Total		

R-06

BASIC ENERGY SERVICES

3451 LeTourneau
Gillette, WY 82718
307-682-5258

Cementing Ticket No. 1719 21389

Date	Customer Order No.		Sect.	Twp.	Range	Truck Called Out	On Location	Job Began	Job Completed
3-30-18						2:00 a.m.	3:30 a.m.	4:45 a.m	6:00 a.m.

Owner	Contractor	Charge To
Florence Copper	Cascade Drilling	Cascade Drilling
Mailing Address	City	State

Well No. & Form	Place	County	State
R-06	Florence copper	Pinal	AZ

Depth of Well	Depth of Job	Casing (New / Used)	Size / Weight	Size of Hole / Amt. and Kind of Cement	Cement Left in casing by / Request Necessity
1225	476	Used	Size 14	12.25 / 2/5	0 feet

Kind of Job: Recovery Well Completion

Drillpipe ____ Tubing 2 3/8 (Rotary / Cable) Truck No. ____

Price Reference No. ____
Price of Job 1210
Second Stage ____
Pump Truck Mileage 3825
P.U. Mileage 765
Other Charges ____
Total Charges 5,800.00

Remarks
Safety Meeting held
Rig up hose and valve to tubing
pump 5 bbls ahead to clear tubing clear
pump and mix sks 2/5 cement
displace .5 thru mixer
close valve/ release any pressure
rig down from tubing
wash up in cellar
good cement to surface

Cementer BRYAN hAMMOND Lead Yield 1.38 Lead Wt. 14.6 Lead Water 7 SV 76
Helper DANIEL JOHNSON Tail Yield ____ Tail Wt. ____ Lead Water ____ SV ____
District CAMBELL State WY

The above job was done under supervision of the owner, operator, or his agent whose signature appears below.

Agent of contractor or operator

Sales Ticket for Materials Only

QUANTITY SACKS	BRAND AND TYPE	PRICE	TOTAL
16	Crew subsistance	500	8,000.00
10	Cement Delivery	150	1,500.00
			0.00
			0.00
			0.00
	P,O. #831550		0.00
			0.00
	Expected use 15 yrds=295 sks		0.00
	Used 315 sks		0.00
			0.00
			0.00
			0.00
			0.00
Plugs			0.00

Equipment #	HRS				
28983	1.5	315	Handling & Dumping	2.44	768.60
84127	1		Mileage		0.00
			Sub Total		16,068.60
			Discount		
			Sales Tax		
Signature of operator			Total		

Bryan Hammond

PIPE TALLY

Project Name.: FCI PTF	Project No.: 129687-007
Well No.: R-06	Date: 5-21-18
Location:	Pipe Talley for: R-06 LINER
Total Depth:	Geologist: C. GIUSTI

Type of Connections: ☐ Welded ☐ T+C ☑ Flush Thread ☐ Other

Pipe	✓	Length (ft)	Length Σ (ft)	Pipe Type	Pipe	✓	Length (ft)	Length Σ (ft)	Pipe Type
1	✓	0.24	0.24	SS END CAP					
2	✓	20.01	20.25	3" PVC 0.080 SLOT					
3	✓	20.00	40.25	↓					
4	✓	19.99	60.24						
5	✓	20.00	80.24						
6	✓	19.99	100.23						
7	✓	20.01	120.24						
8	✓	20.02	140.26						
9	✓	20.00	160.26						
10	✓	20.01	180.27						
11	✓	19.98	200.25						
12	✓	20.00	220.25						
13	✓	20.00	240.25						
14	✓	20.00	260.25						
15	✓	20.00	280.25						
16	✓	20.00	300.25						
17	✓	19.99	320.24						
18	✓	20.02	340.26						
19	✓	20.00	360.26						
20	✓	20.00	380.26						
21	✓	20.00	400.26						
22	✓	20.00	420.26						
23	✓	19.99	440.25						
24	✓	19.98	460.23						
25	✓	19.99	480.22						
26	✓	19.99	500.21						
27	✓	19.99	520.20						

SUMMARY OF TALLY

Total Length tallied:	520.20
Casing Stick-Up:	NA
Length of Casing Cut-Off:	NA
Bottom of Well:	~1090 ft
Screened Interval:	
Total Screen in Hole:	520.20

Notes: 3-INCH NOMINAL FLUSH THREAD SCH 80 0.080 SLOT PVC SCREEN

APPENDIX E

Geophysical Logs

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER
WELL ID	R-06
FIELD	FLORENCE COPPER
COUNTY	PINAL
STATE	ARIZONA

TYPE OF LOGS: E-LOG

MORE: NAT. GAMMA

LOCATION

SEC TWP RGE

OTHER SERVICES
3-ARM CALIPER
TEMPERATURE
FLUID RESISTIVITY
SONIC
DEVIATION

PERMANENT DATUM	ELEVATION	K.B.
LOG MEAS. FROM	GROUND LEVEL ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND LEVEL	G.L.

DATE	11-24-17 / 3-27-18	TYPE FLUID IN HOLE	MUD
RUN No	1 & 2	MUD WEIGHT	N/A
TYPE LOG	E-LOG - NAT. GAMMA	VISCOSITY	N/A
DEPTH-DRILLER	1220 FT.	LEVEL	FULL
DEPTH-LOGGER	1210 FT.	MAX. REC. TEMP.	39.71 DEG. C
BTM LOGGED INTERVAL	1210 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.2 FT.
DRILLER / RIG#	CASCADE	LOGGING TRUCK	TRUCK #900
RECORDED BY / Logging Eng.	A. OLSON / M. QUINONES	TOOL STRING/SN	GEOVISTA E-LOG SN 4035
WITNESSED BY	COLLIN - H&A	LOG TIME:ON SITE/OFF SITE	5:20 A.M.

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	? IN.	SURFACE	40 FT.	24 IN.	STEEL	SURFACE	40 FT.
2	20 IN.	40 FT.	500 FT.	14 IN.	STEEL	SURFACE	500 FT.
3	12 1/4 IN.	500 FT.	TOTAL DEPTH				

COMMENTS:

.

Tool Summary:

Date	11-24-17 / 3-27-18	**Date**	11-24-17 / 3-27-18	**Date**	11-24-17 / 3-27-18
Run No.	1	**Run No.**	2	**Run No.**	3
Tool Model	MSI COMBO TOOL	**Tool Model**	GEOVISTA E-LOG	**Tool Model**	MSI 60mm SONIC
Tool SN	4183 / 5543	**Tool SN**	4790 / 4035	**Tool SN**	5050
From	SURFACE	**From**	SURFACE	**From**	SURFACE
To	1210 FT.	**To**	1210 FT.	**To**	1210 FT.
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON
Truck No	900	**Truck No**	900	**Truck No**	900
Operation Check	3-26-18	**Operation Check**	3-26-18	**Operation Check**	3-26-18
Calibration Check	3-26-18	**Calibration Check**	3-26-18	**Calibration Check**	N/A
Time Logged	6:50 A.M.	**Time Logged**	7:35 A.M.	**Time Logged**	8:30 A.M.

Date	11-24-17 / 3-27-18	**Date**	
Run No.	4	**Run No.**	5
Tool Model	2DVA / QL DVA	**Tool Model**	
Tool SN	6002 / 142201	**Tool SN**	
From	SURFACE	**From**	
To	1200 FT.	**To**	
Recorded By	A. OLSON	**Recorded By**	
Truck No	900	**Truck No**	
Operation Check	1-24-18	**Operation Check**	
Calibration Check	N/A	**Calibration Check**	
Time Logged	9:20 A.M.	**Time Logged**	

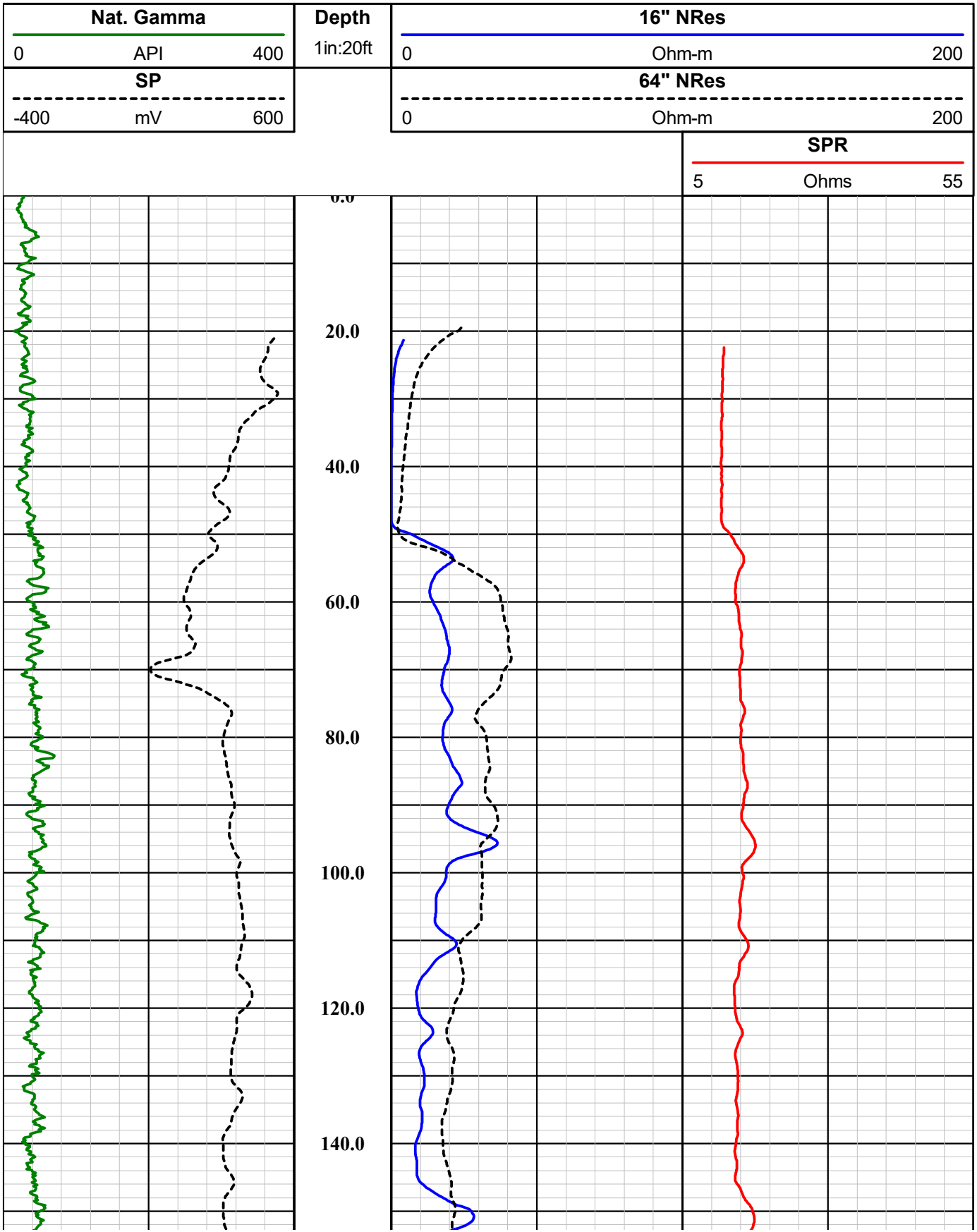
Additional Comments:

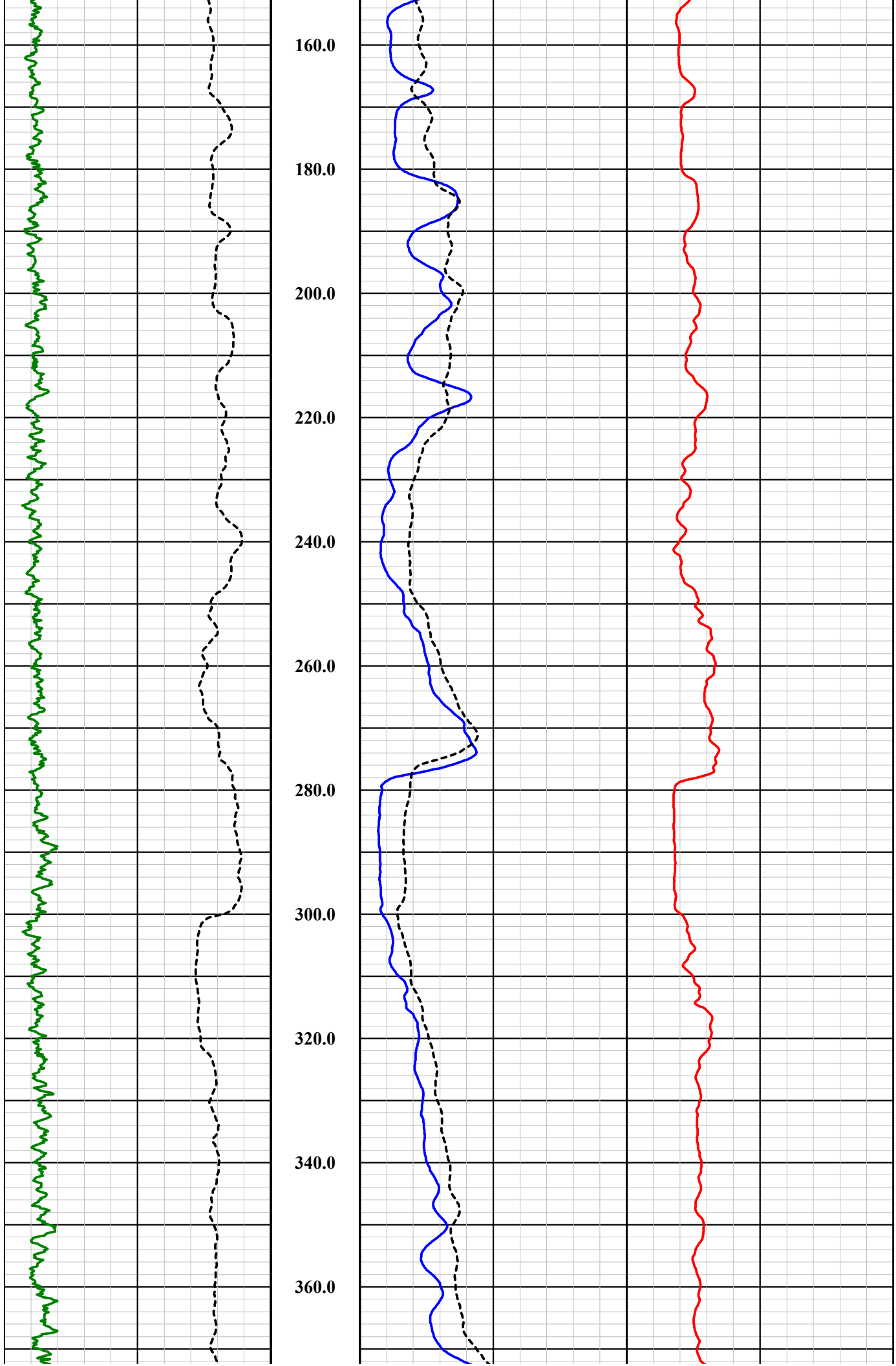
Caliper Arms Used: 15 IN. **Calibration Points:** 8 IN. & 23 IN.

E-Log Calibration Range: 10-1000 OHM-M **Calibration Points:** 10 & 1000 OHM-M

Disclaimer:

All interpretations of log data are opinions based on inferences from electrical or other measurements. We do not guarantee the accuracy or correctness of any interpretations or recommendations and shall not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our employees or agents. These interpretations are also subject to our general terms and conditions set out in our current Service Invoice.

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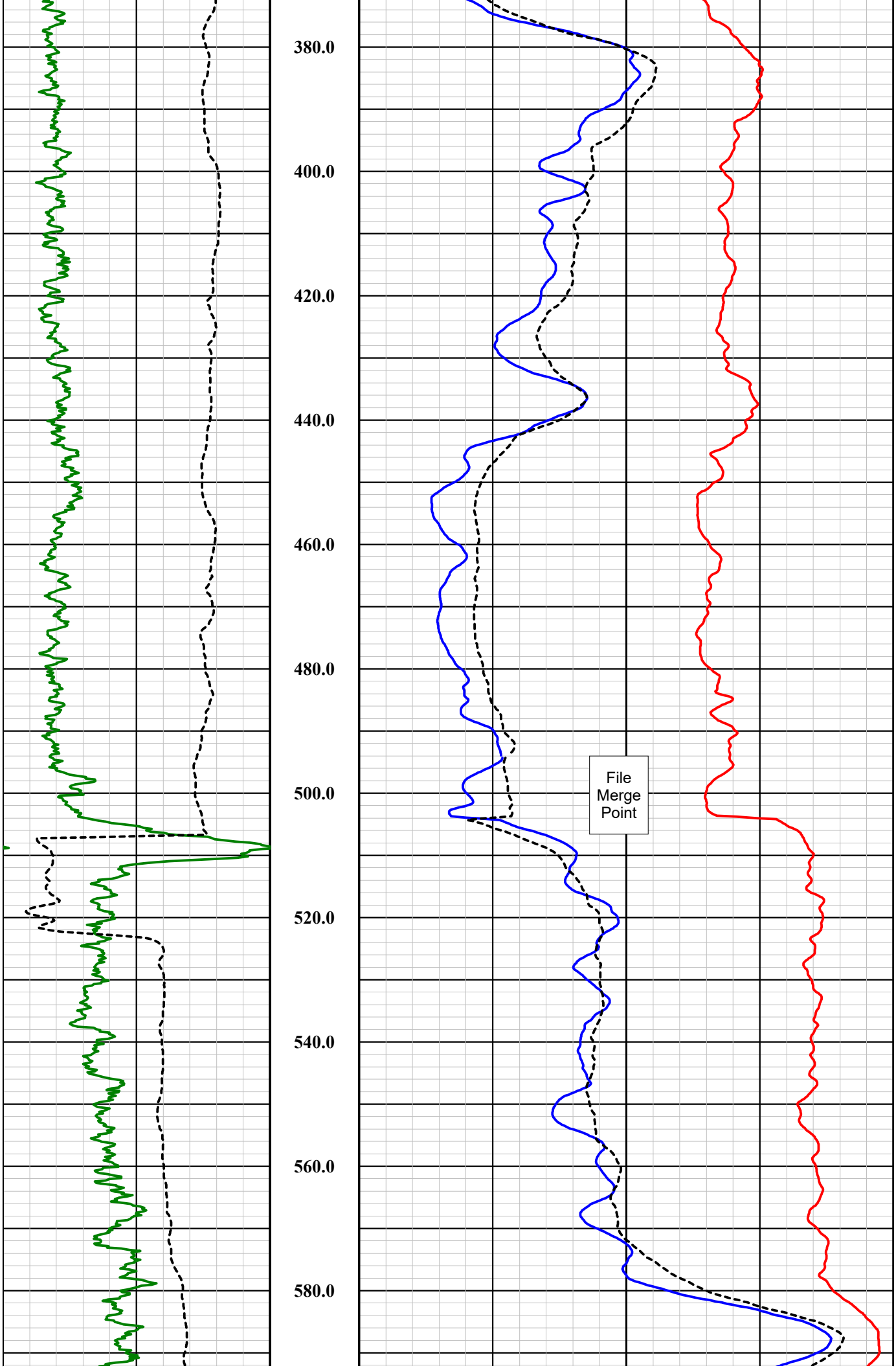
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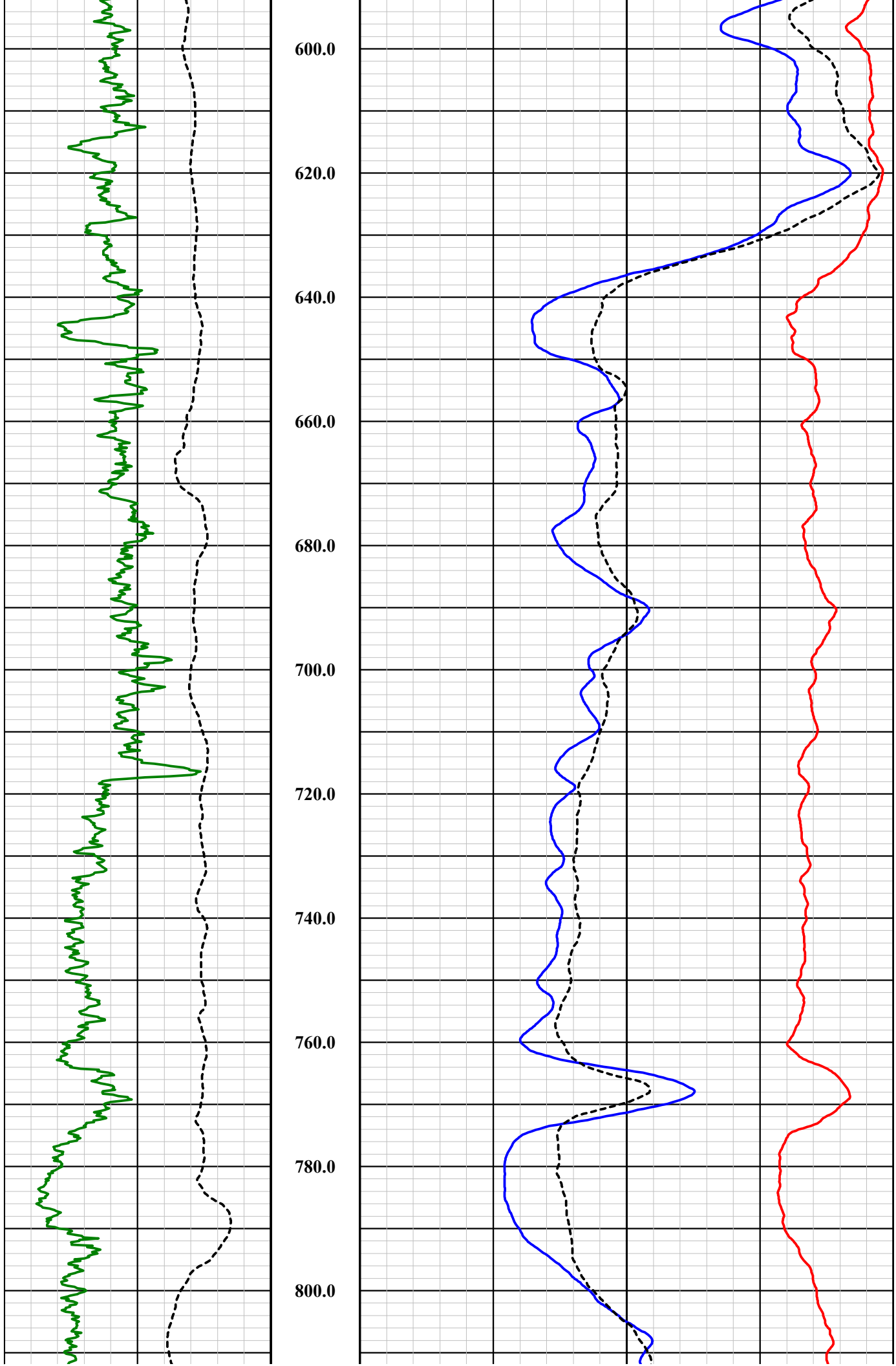
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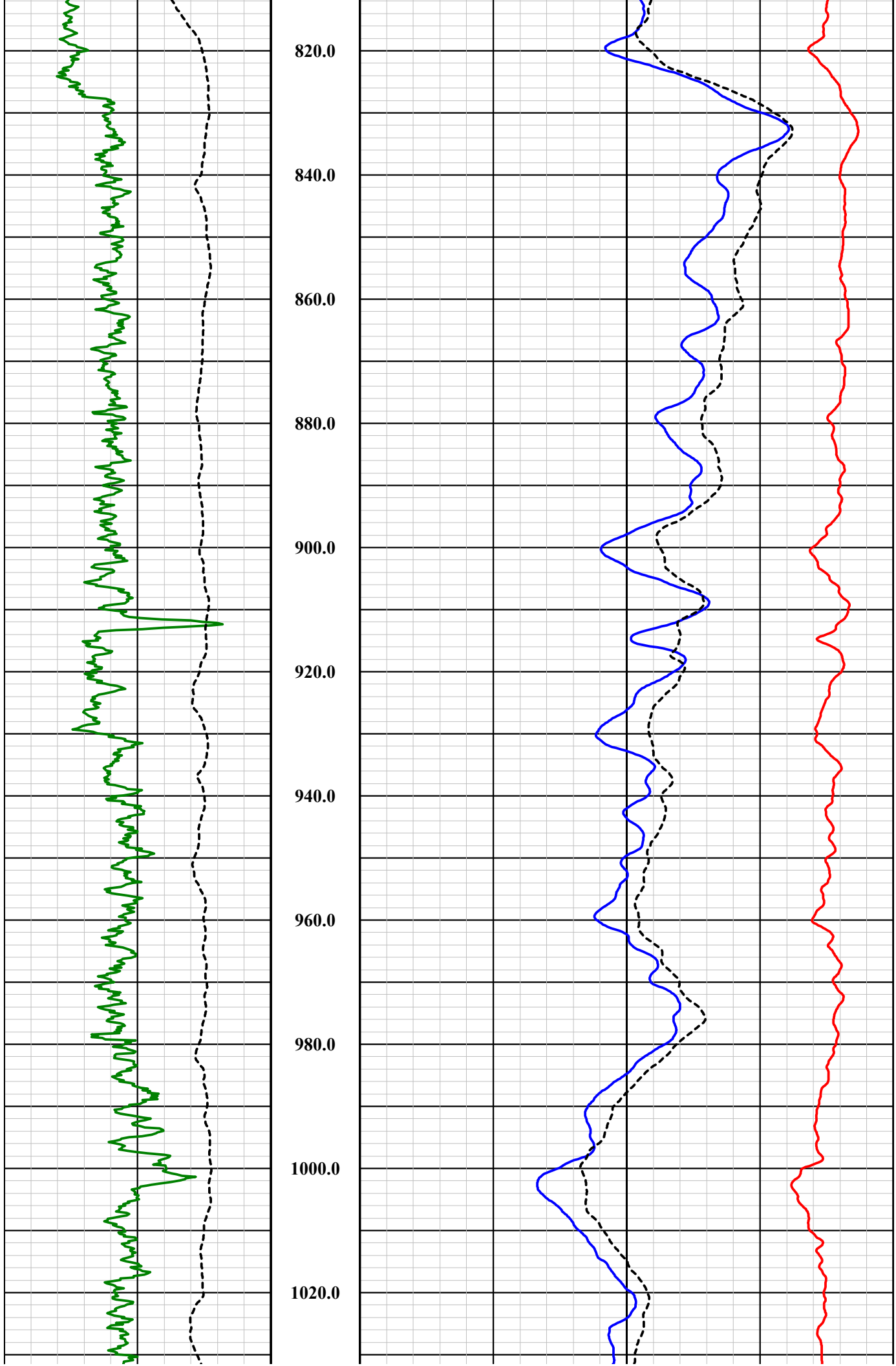
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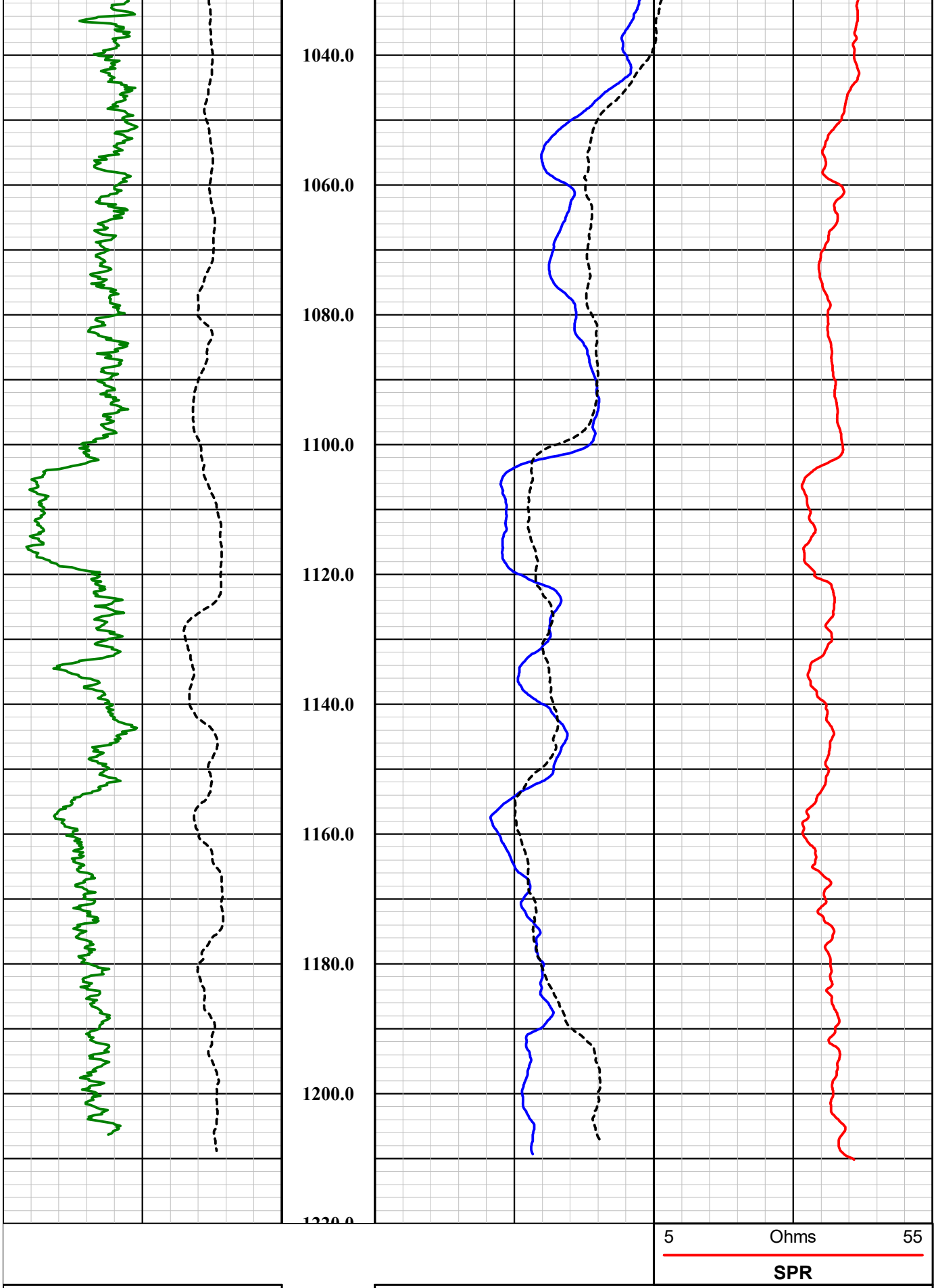
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55
SPR
-400
mV
600
SP
0
Ohm-m
200
64" NRes
0
API
400
Nat. Gamma
1in:20ft
Depth
0
Ohm-m
200
16" NRes

GeoVista E-Log Tool

Tool SN: 4035 & 4790

Probe Top = Depth Ref.

Bridle connects to wireline cablehead: Wireline armor is the B Electrode.

Four Conductor Probe Top

Bridle Electrode (N Electrode)

64" Normal Resistivity Electrode/Spontaneous Potential Electrode (M Electrode)

Probe Length = 2.3 m or 7.55 ft
Bridle Length = 10.0 m or 32.81 ft

Probe Weight = 7.0 kg or 15.4 lbs

Can only be collected in fluid

Isolation Bridle - Not shown in diagram but is necessary for operation

Electrode Measuring Points (from bottom of probe)
- Spontaneous Potential (SP): 0.65 m or 2.13 ft
- 16" Normal Resistivity (16" NRes): 0.50 m or 1.64 ft
- 64" Normal Resistivity (64" NRes): 1.10 m or 3.61 ft
- Single Point Resistance (SPR): 0.25 m or 0.82 ft

Temperature Rating: 80 Deg C (176 Deg F)
Presure Rating: 200 bar (2900 psi)

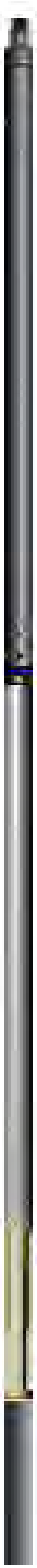
16" Normal Resistivity Electrode (M Electrode)

Current Electrode/Single Point Resistance (A Electrode)

1.65" or 42 mm Diameter

MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.



Single Conductor MSI Probe Top

Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

3-Arm Caliper = 1.44 m (56.75 in)

Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC
borehole geophysics & video services

Company	FLORENCE COPPER
Well	R-06
Field	FLORENCE COPPER
County	PINAL
State	ARIZONA

Final E-Log Summary

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER
WELL ID	R-06
FIELD	FLORENCE COPPER
COUNTY	PINAL
STATE	ARIZONA

TYPE OF LOGS: GAMMA - CALIPER
MORE: TEMP. / FLUID RES.

LOCATION

SEC TWP RGE

OTHER SERVICES
E-LOG
SONIC
DEVIATION

PERMANENT DATUM	ELEVATION	K.B.
LOG MEAS. FROM	GROUND LEVEL ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND LEVEL	G.L.

DATE	11-24-17 / 3-27-18	TYPE FLUID IN HOLE	MUD
RUN No	1	MUD WEIGHT	N/A
TYPE LOG	GAMMA - CALIPER - TFR	VISCOSITY	N/A
DEPTH-DRILLER	1220 FT.	LEVEL	FULL
DEPTH-LOGGER	1210 FT.	MAX. REC. TEMP.	39.71 DEG. C
BTM LOGGED INTERVAL	1210 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.2 FT.
DRILLER / RIG#	CASCADE	LOGGING TRUCK	TRUCK #900
RECORDED BY / Logging Eng.	A. OLSON / M. QUINONES	TOOL STRING/SN	MSI COMBO TOOL SN 5543
WITNESSED BY	COLLIN - H&A	LOG TIME:ON SITE/OFF SITE	5:20 A.M.

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	? IN.	SURFACE	40 FT.	24 IN.	STEEL	SURFACE	40 FT.
2	20 IN.	40 FT.	500 FT.	14 IN.	STEEL	SURFACE	500 FT.
3	12 1/4 IN.	500 FT.	TOTAL DEPTH				

COMMENTS:

.

Tool Summary:

Date	11-24-17 / 3-27-18	**Date**	11-24-17 / 3-27-18	**Date**	11-24-17 / 3-27-18
Run No.	1	**Run No.**	2	**Run No.**	3
Tool Model	MSI COMBO TOOL	**Tool Model**	GEOVISTA E-LOG	**Tool Model**	MSI 60mm SONIC
Tool SN	4183 / 5543	**Tool SN**	4790 / 4035	**Tool SN**	5050
From	SURFACE	**From**	SURFACE	**From**	SURFACE
To	1210 FT.	**To**	1210 FT.	**To**	1210 FT.
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON
Truck No	900	**Truck No**	900	**Truck No**	900
Operation Check	3-26-18	**Operation Check**	3-26-18	**Operation Check**	3-26-18
Calibration Check	3-26-18	**Calibration Check**	3-26-18	**Calibration Check**	N/A
Time Logged	6:50 A.M.	**Time Logged**	7:35 A.M.	**Time Logged**	8:30 A.M.

Date	11-24-17 / 3-27-18	**Date**	
Run No.	4	**Run No.**	5
Tool Model	2DVA / QL DVA	**Tool Model**	
Tool SN	6002 / 142201	**Tool SN**	
From	SURFACE	**From**	
To	1200 FT.	**To**	
Recorded By	A. OLSON	**Recorded By**	
Truck No	900	**Truck No**	
Operation Check	1-24-18	**Operation Check**	
Calibration Check	N/A	**Calibration Check**	
Time Logged	9:20 A.M.	**Time Logged**	

Additional Comments:

Caliper Arms Used: 15 IN. **Calibration Points:** 8 IN. & 23 IN.

E-Log Calibration Range: 10-1000 OHM-M **Calibration Points:** 10 & 1000 OHM-M

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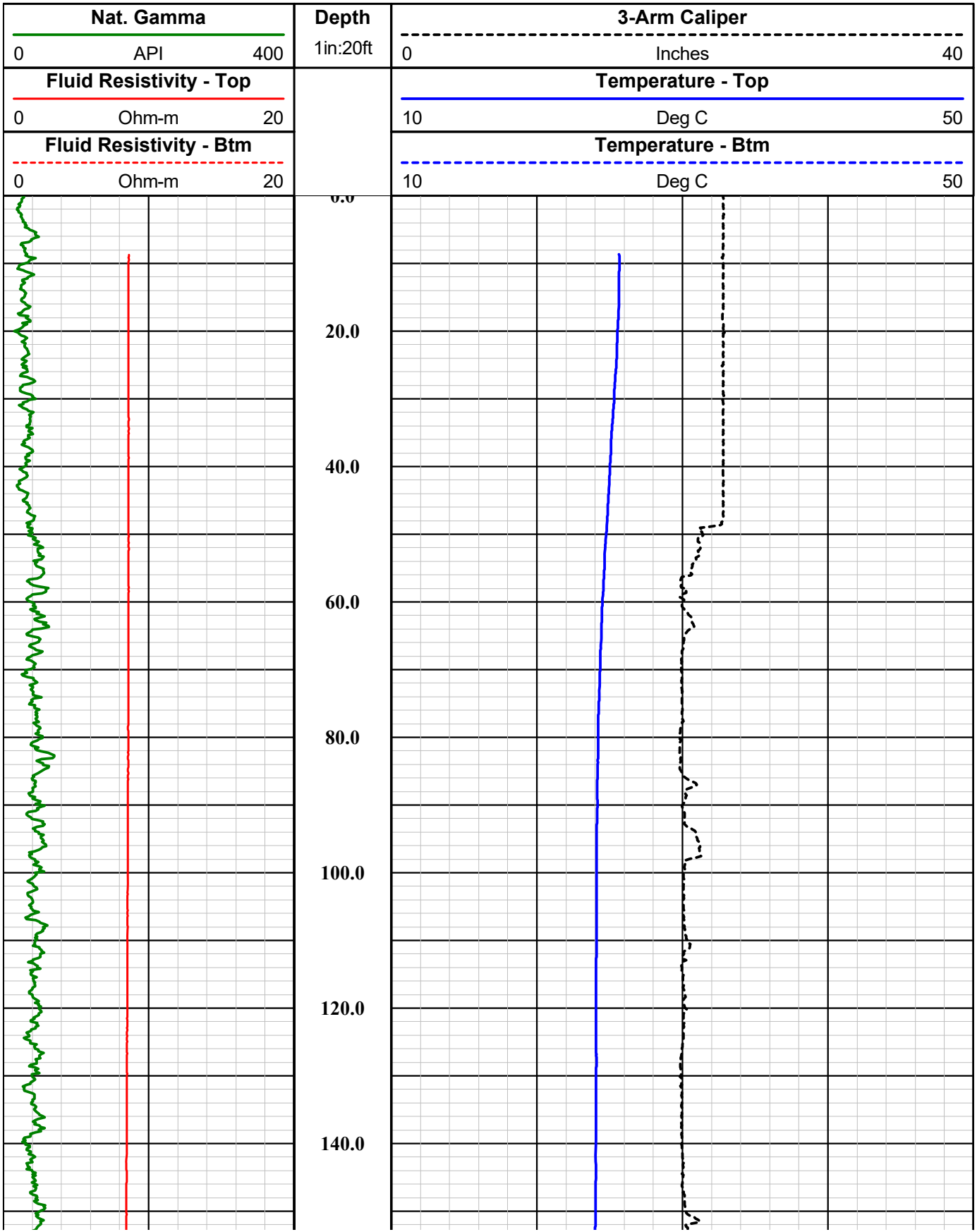

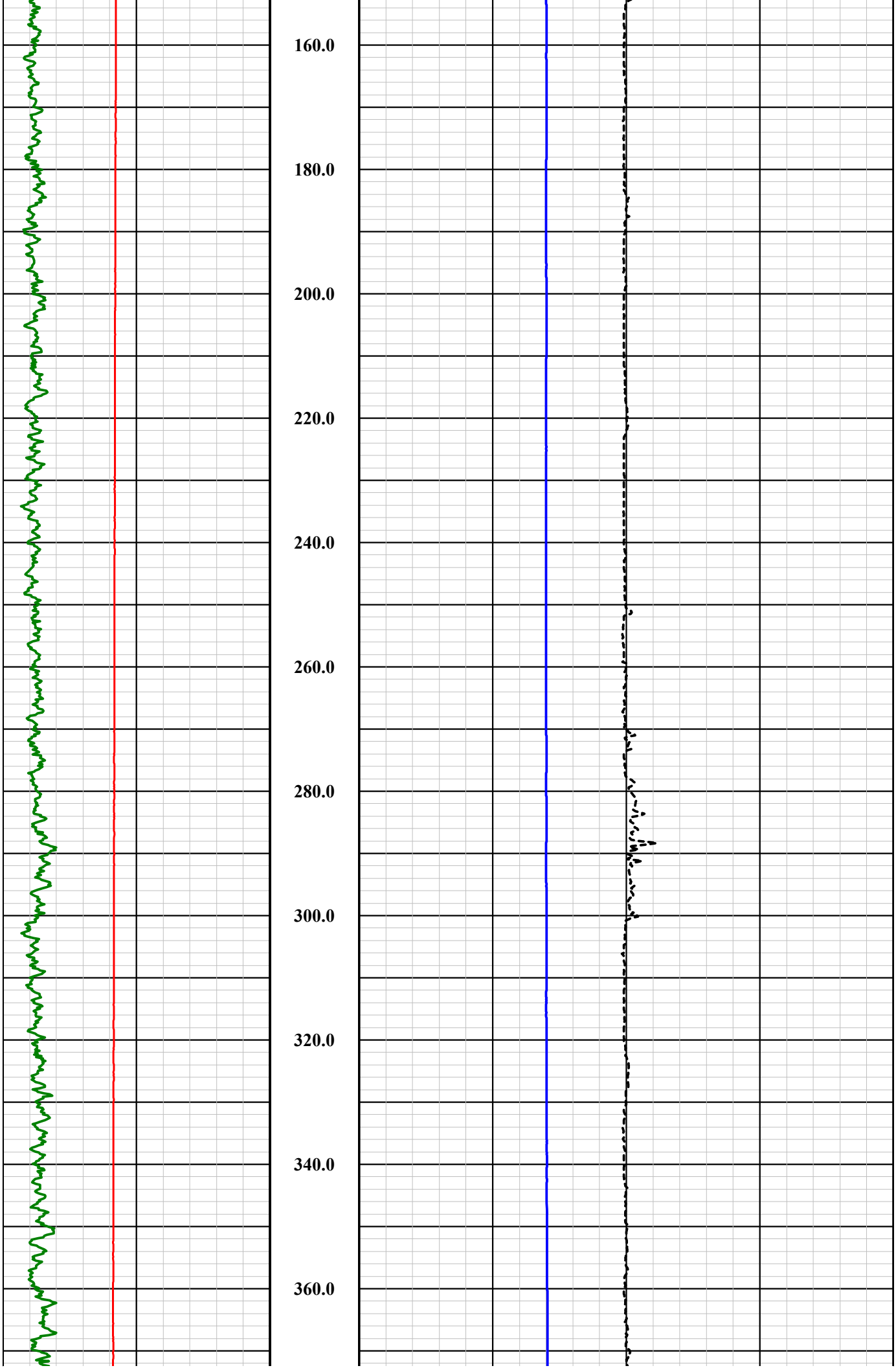
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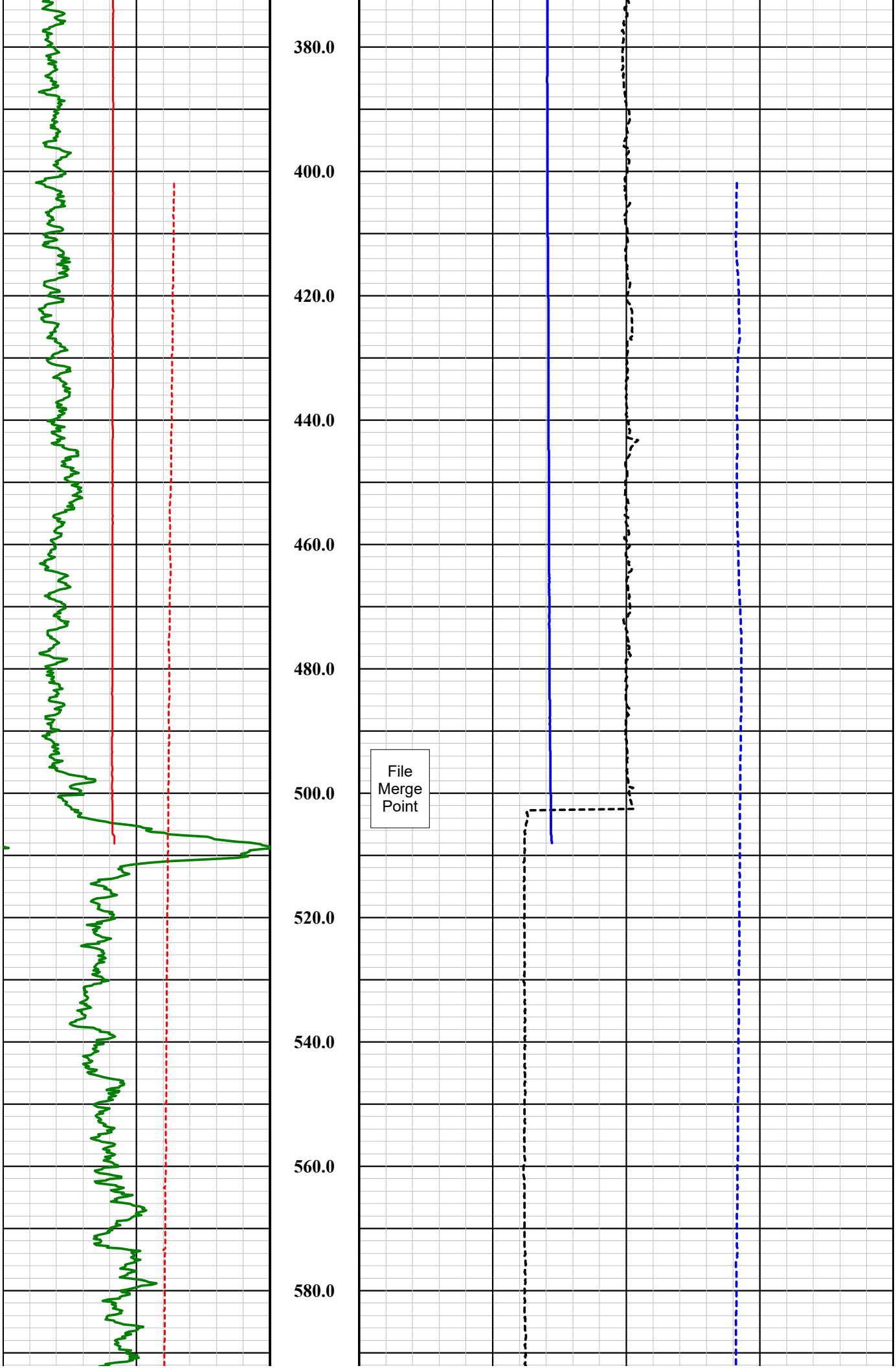
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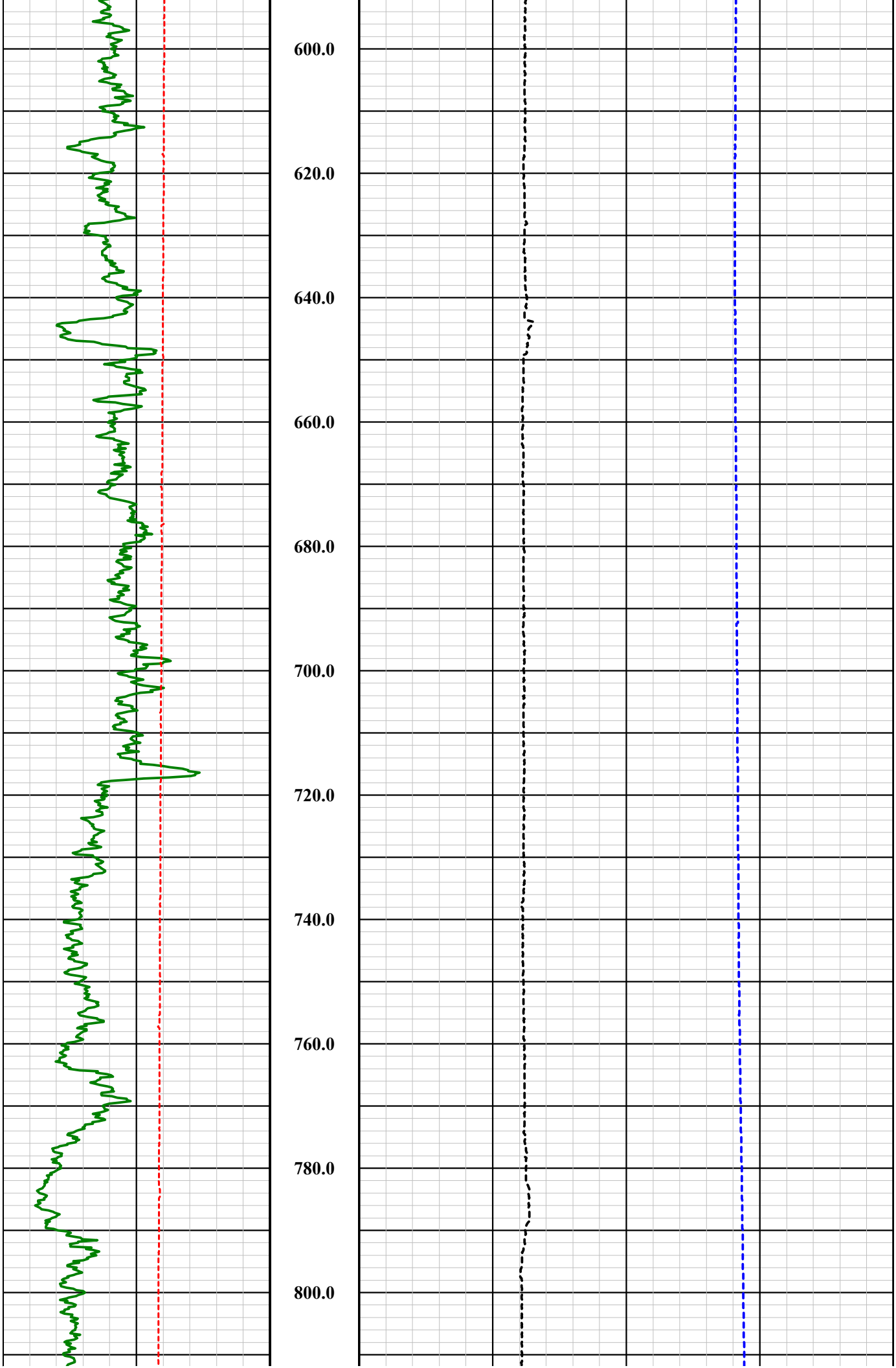
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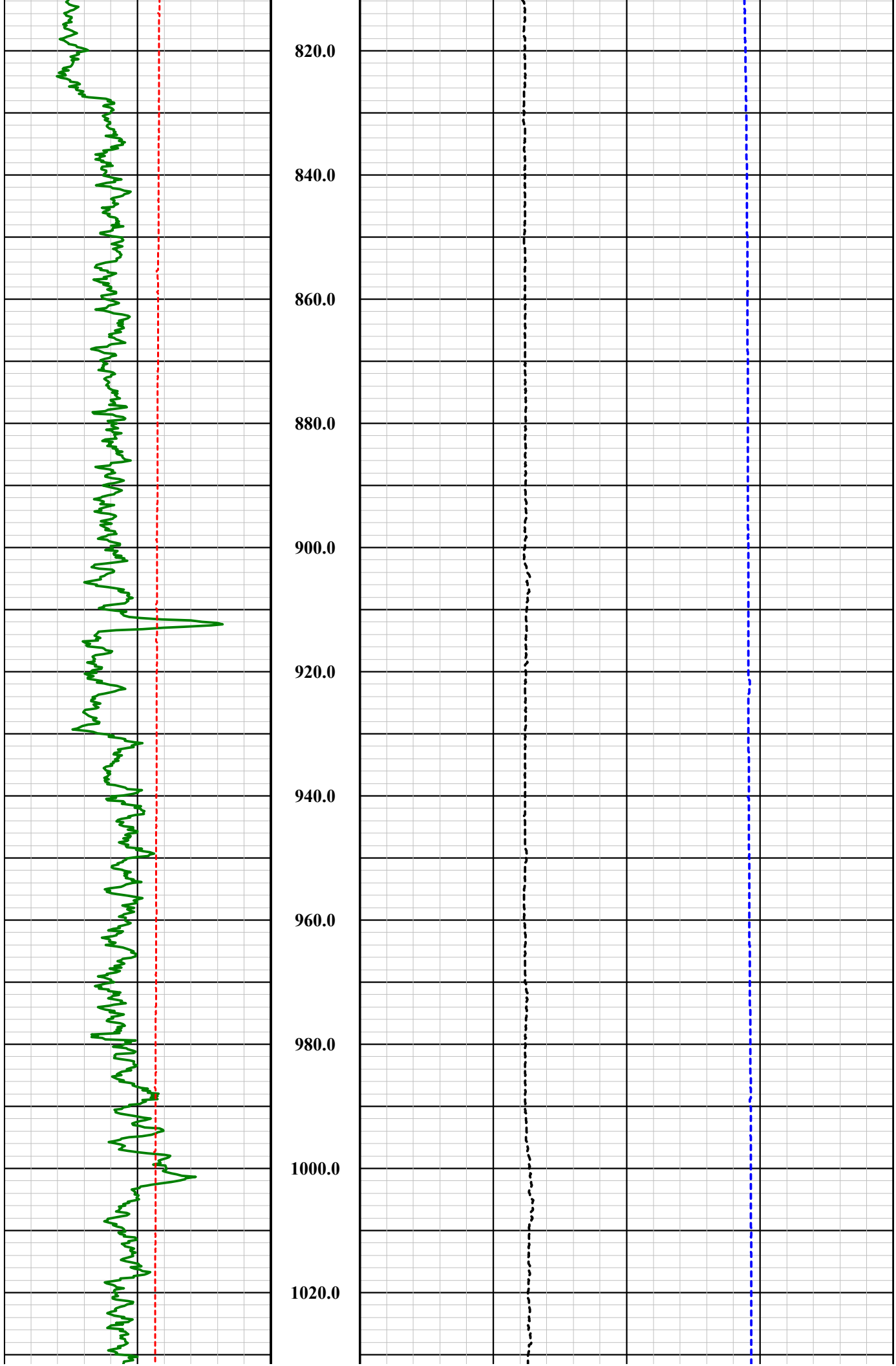
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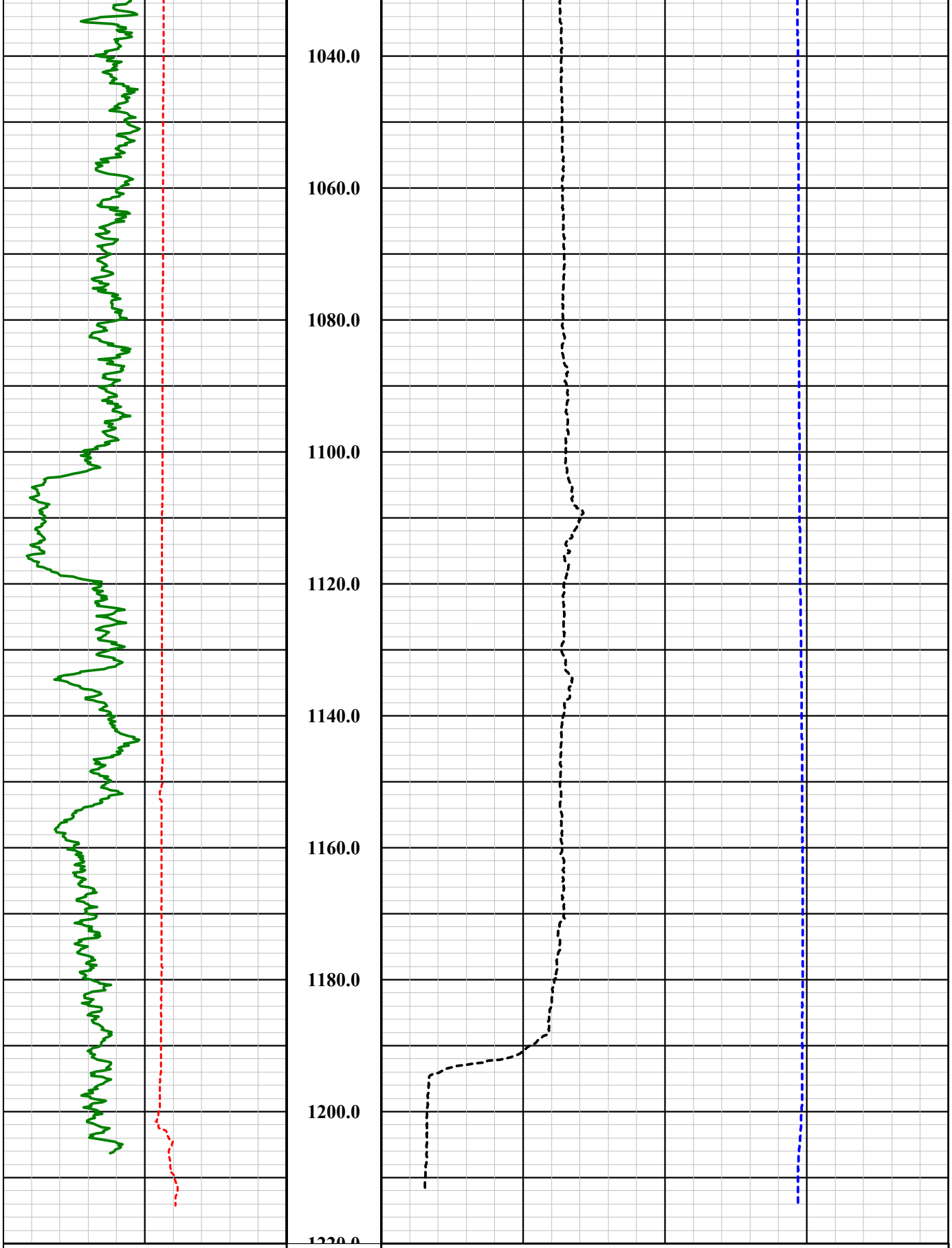
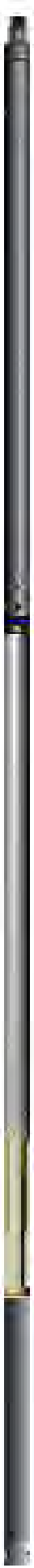


0 Ohm-m 20 **Fluid Resistivity - Btm**		10 Deg C 50 **Temperature - Btm**
0 Ohm-m 20 **Fluid Resistivity - Top**		10 Deg C 50 **Temperature - Top**
0 API 400 **Nat. Gamma**	1in:20ft **Depth**	0 Inches 40 **3-Arm Caliper**

MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.



Single Conductor MSI Probe Top

Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

3-Arm Caliper = 1.44 m (56.75 in)

Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC
borehole geophysics & video services

Company	FLORENCE COPPER
Well	R-06
Field	FLORENCE COPPER
County	PINAL
State	ARIZONA

Final GCT Summary

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER
WELL ID	R-06
FIELD	FLORENCE COPPER
COUNTY	PINAL
STATE	ARIZONA

TYPE OF LOGS: 60mm SONIC
MORE: GAMMA - CALIPER

LOCATION

SEC TWP RGE

OTHER SERVICES
E-LOG
TEMPERATURE
FLUID RESISTIVITY
DEVIATION

PERMANENT DATUM		ELEVATION	K.B.
LOG MEAS. FROM	GROUND LEVEL	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND LEVEL		G.L.

DATE	11-24-17 / 3-27-18	TYPE FLUID IN HOLE	MUD
RUN No	1	MUD WEIGHT	N/A
TYPE LOG	SONIC - GAMMA - CALIPER	VISCOSITY	N/A
DEPTH-DRILLER	1220 FT.	LEVEL	FULL
DEPTH-LOGGER	1210 FT.	MAX. REC. TEMP.	39.71 DEG. C
BTM LOGGED INTERVAL	1210 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.2 FT.
DRILLER / RIG#	CASCADE	LOGGING TRUCK	TRUCK #900
RECORDED BY / Logging Eng.	A. OLSON / M. QUINONES	TOOL STRING/SN	MSI 60mm SONIC SN 5050
WITNESSED BY	COLLIN - H&A	LOG TIME:ON SITE/OFF SITE	5:20 A.M.

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	? IN.	SURFACE	40 FT.	24 IN.	STEEL	SURFACE	40 FT.
2	20 IN.	40 FT.	500 FT.	14 IN.	STEEL	SURFACE	500 FT.
3	12 1/4 IN.	500 FT.	TOTAL DEPTH				

COMMENTS:

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Tool Summary:

Date	11-24-17 / 3-27-18	**Date**	11-24-17 / 3-27-18	**Date**	11-24-17 / 3-27-18
Run No.	1	**Run No.**	2	**Run No.**	3
Tool Model	MSI COMBO TOOL	**Tool Model**	GEOVISTA E-LOG	**Tool Model**	MSI 60mm SONIC
Tool SN	4183 / 5543	**Tool SN**	4790 / 4035	**Tool SN**	5050
From	SURFACE	**From**	SURFACE	**From**	SURFACE
To	1210 FT.	**To**	1210 FT.	**To**	1210 FT.
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON
Truck No	900	**Truck No**	900	**Truck No**	900
Operation Check	3-26-18	**Operation Check**	3-26-18	**Operation Check**	3-26-18
Calibration Check	3-26-18	**Calibration Check**	3-26-18	**Calibration Check**	N/A
Time Logged	6:50 A.M.	**Time Logged**	7:35 A.M.	**Time Logged**	8:30 A.M.

Date	11-24-17 / 3-27-18	**Date**	
Run No.	4	**Run No.**	5
Tool Model	2DVA / QL DVA	**Tool Model**	
Tool SN	6002 / 142201	**Tool SN**	
From	SURFACE	**From**	
To	1200 FT.	**To**	
Recorded By	A. OLSON	**Recorded By**	
Truck No	900	**Truck No**	
Operation Check	1-24-18	**Operation Check**	
Calibration Check	N/A	**Calibration Check**	
Time Logged	9:20 A.M.	**Time Logged**	

Additional Comments:

Caliper Arms Used: 15 IN. **Calibration Points:** 8 IN. & 23 IN.

E-Log Calibration Range: 10-1000 OHM-M **Calibration Points:** 10 & 1000 OHM-M

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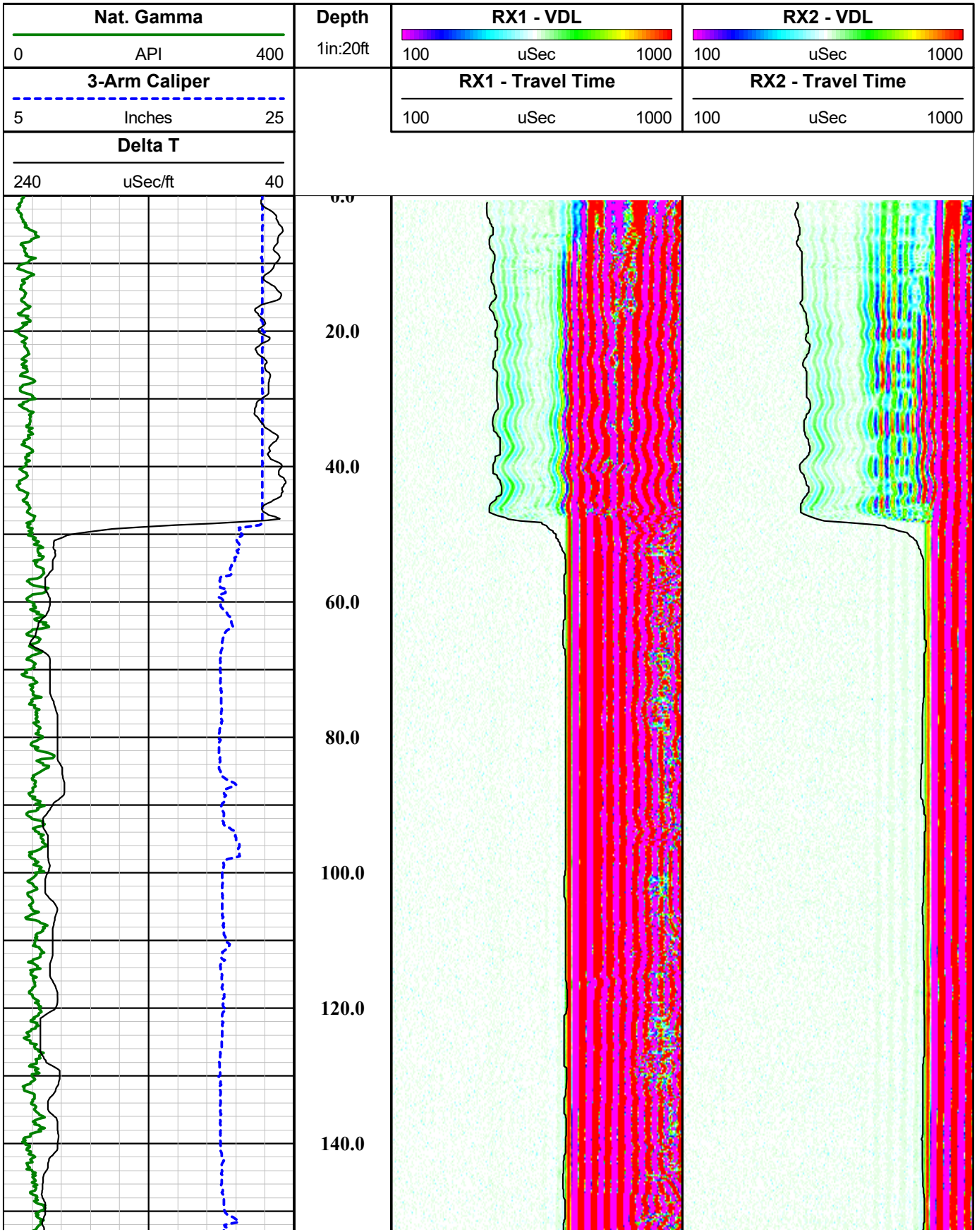

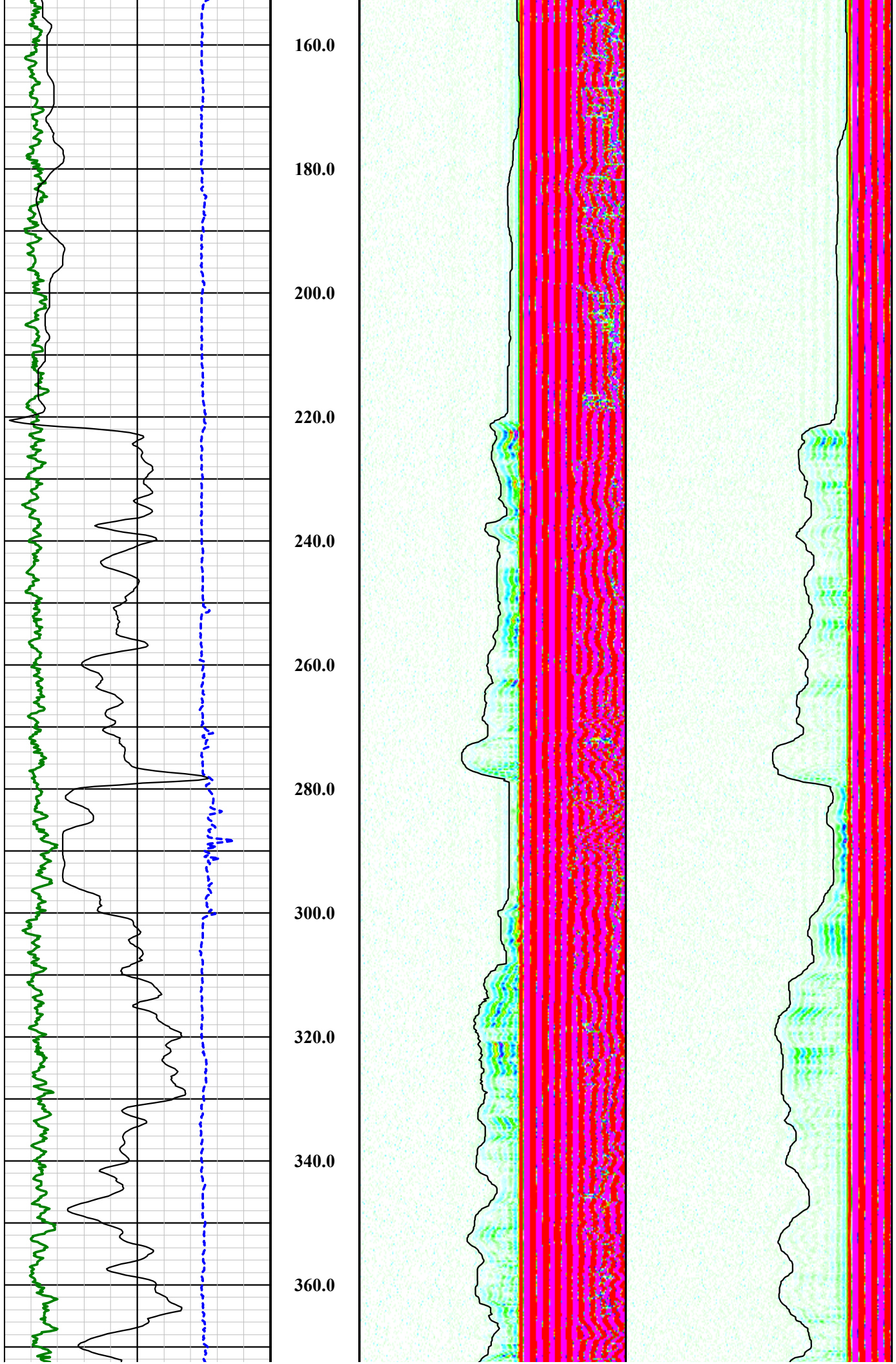
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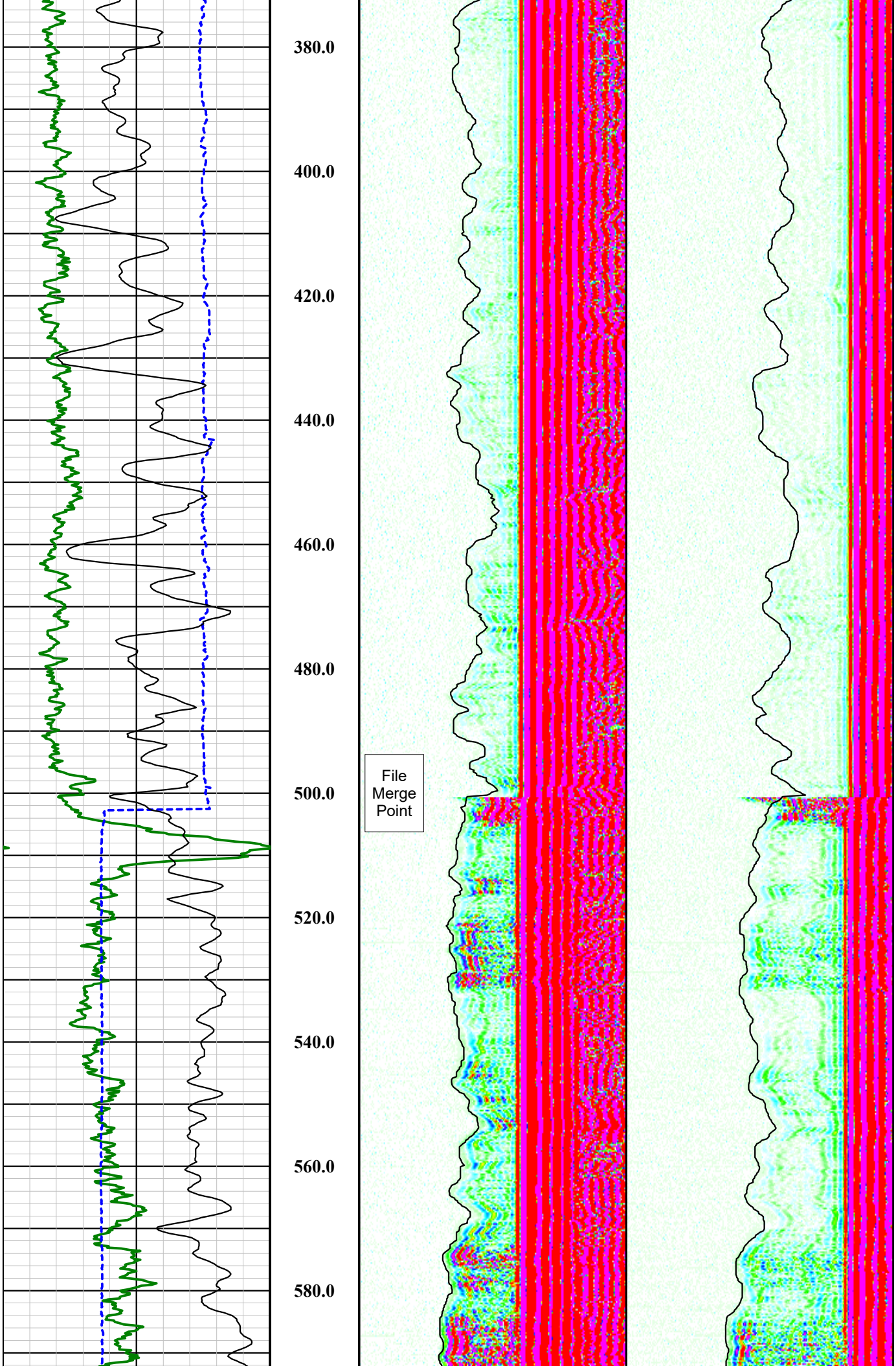
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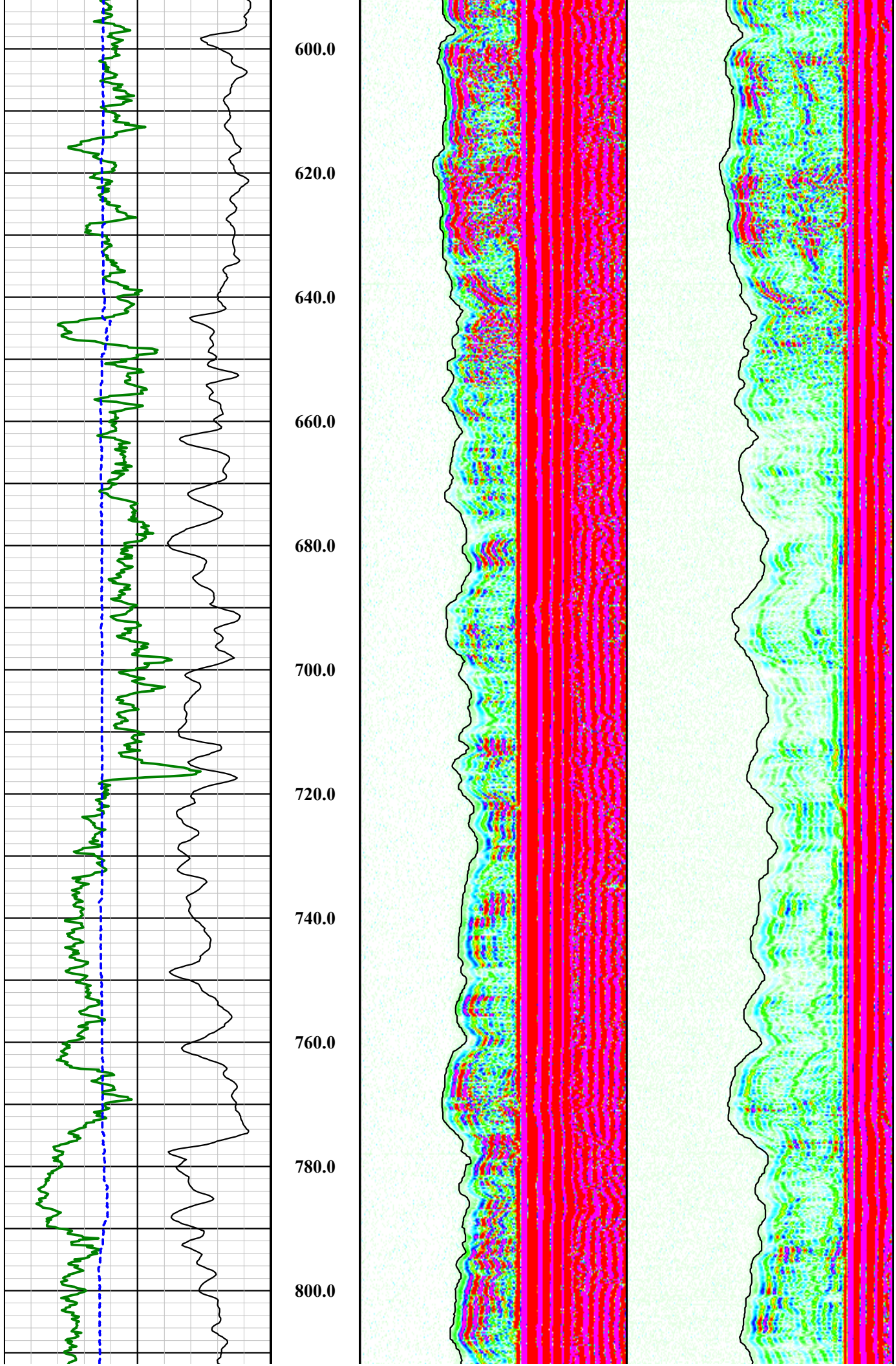
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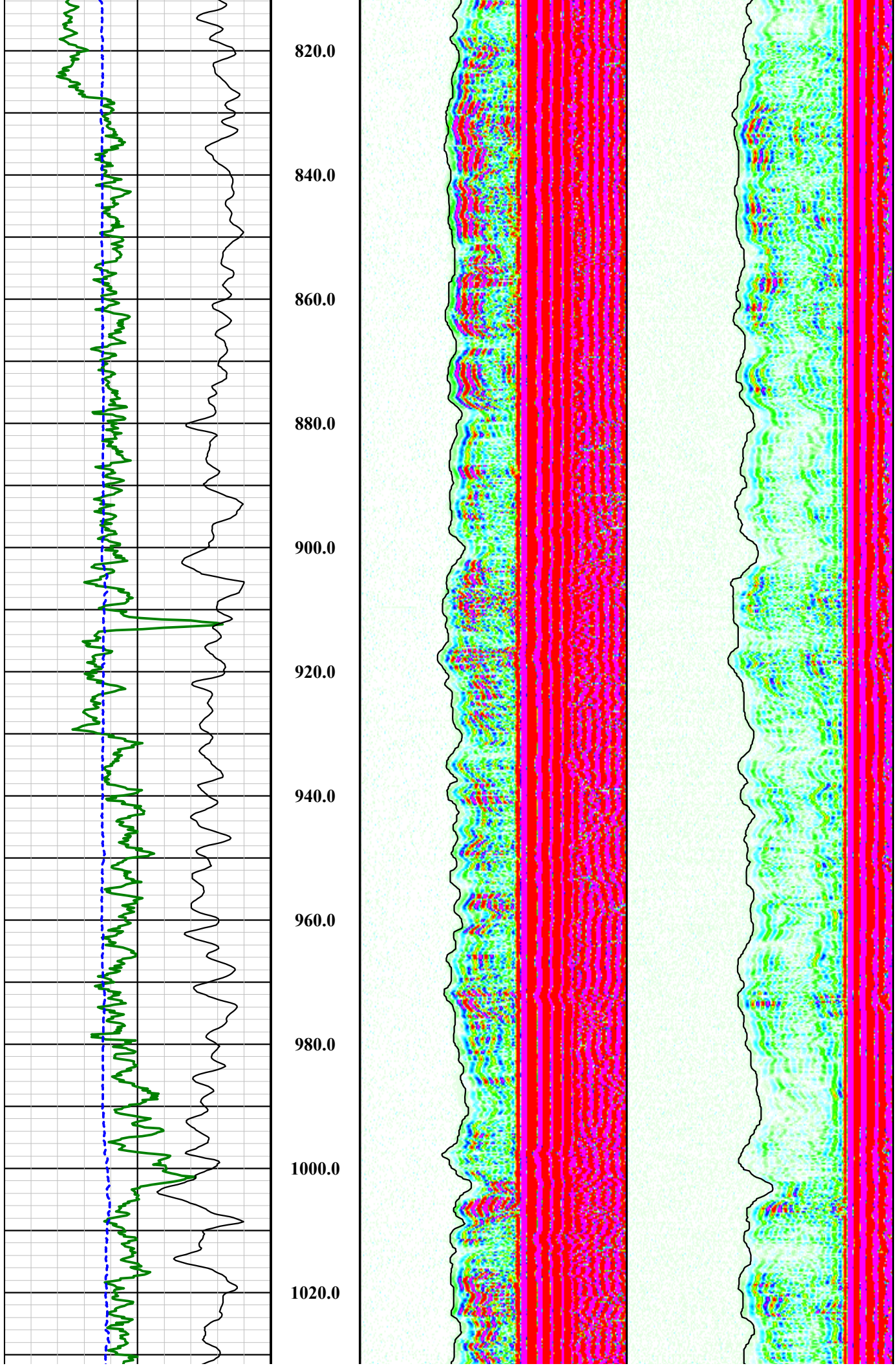
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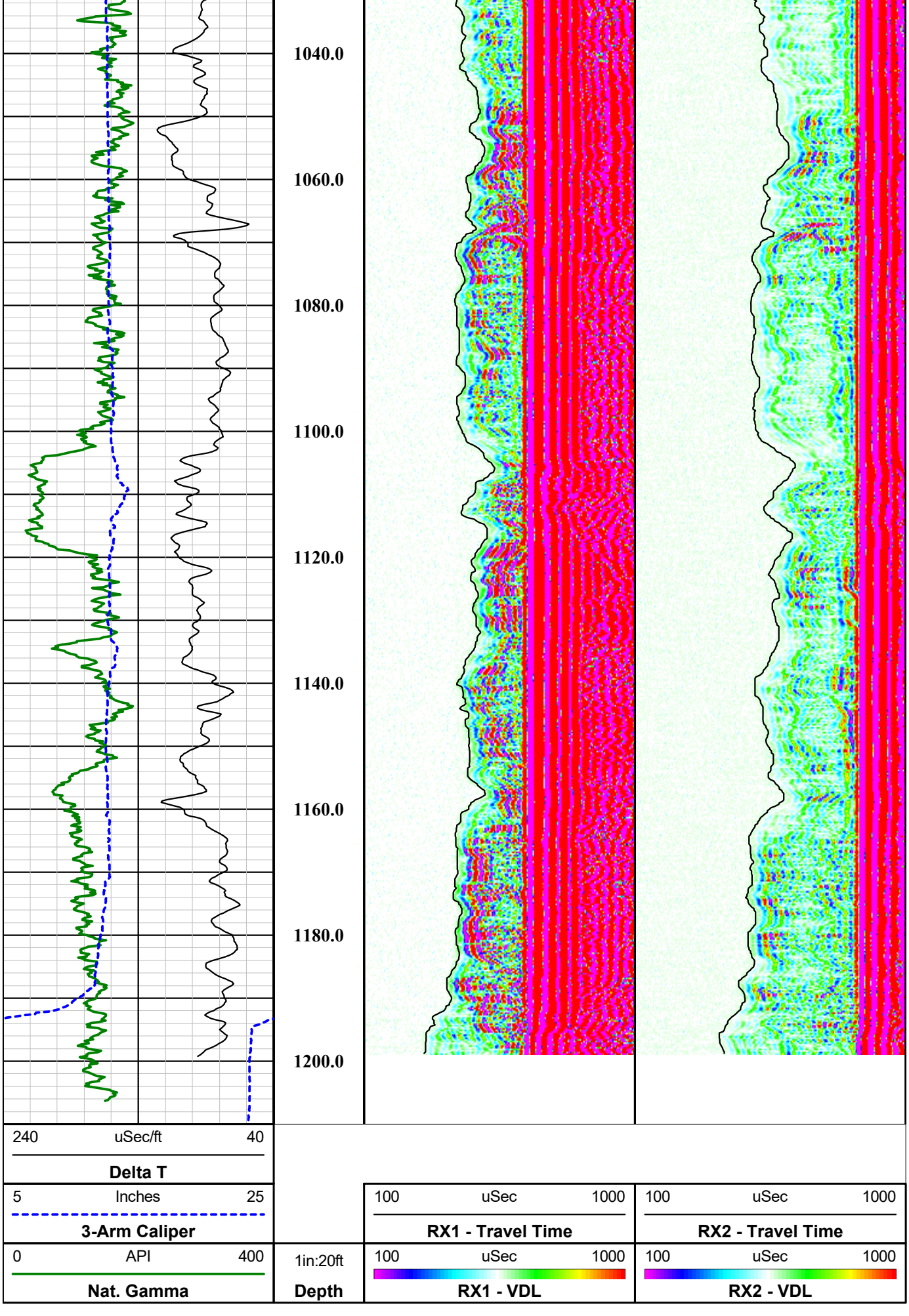

MSI 60 mm 2 RX Full Waveform Sonic Tool

Probe Top = Depth Ref.

Tool SN: 5001, 5050 & 6003

Four Conductor MSI Probe Top

Probe Length = 2.8 m or 9.19 ft
Probe Weight = ~26.5 kg or 58.4 lbs

Sensors: Ceramic Piezoelectric

Transmitter Frequency: 24 - 28 kHz resonant frequency

Rx - Rx Spacing: 0.3 m (12.0 in)

Typically centralized with external centralizers

Can only be collected in fluid

Temperature Rating: 80 Deg C (176 Deg F)
Presure Rating: 200 bar (2900 psi)

Rx-2 Tx - Rx2 Spacing = 1.22 m (48.0 in)

Rx-1 Tx - Rx1 Spacing = .91 m (36.0 in)

Acoustic Isolater

Tx = Acoustic Transmitter

0.660 m or 26.0 in. - End of tool to center of Tx

2.36 in or 60 mm Diameter

MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.

Single Conductor MSI Probe Top

Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

3-Arm Caliper = 1.44 m (56.75 in)

Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC
borehole geophysics & video services

Company	FLORENCE COPPER
Well	R-06
Field	FLORENCE COPPER
County	PINAL
State	ARIZONA

Final Sonic Summary

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER
WELL ID	R-06
FIELD	FLORENCE COPPER
COUNTY	PINAL
STATE	ARIZONA

TYPE OF LOGS: 3-ARM CALIPER
MORE: W / VOLUME CALC.

LOCATION

SEC TWP RGE

OTHER SERVICES
E-LOG
SONIC
DEVIATION
NAT. GAMMA
TEMPERATURE
FLUID RESISTIVITY

PERMANENT DATUM		ELEVATION	K.B.
LOG MEAS. FROM	GROUND LEVEL	ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND LEVEL		G.L.

DATE	11-24-17	TYPE FLUID IN HOLE	MUD
RUN No	1	MUD WEIGHT	N/A
TYPE LOG	VOLUME CALCULATION	VISCOSITY	N/A
DEPTH-DRILLER	507 FT.	LEVEL	FULL
DEPTH-LOGGER	504 FT.	MAX. REC. TEMP.	25.68 DEG. C
BTM LOGGED INTERVAL	504 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.2 FT.
DRILLER / RIG#	HYDRO RESOURCES	LOGGING TRUCK	TRUCK #900
RECORDED BY / Logging Eng.	A. OLSON / M. QUINONES	TOOL STRING/SN	MSI COMBO TOOL SN 4183
WITNESSED BY	ZACH - H&A	LOG TIME:ON SITE/OFF SITE	3:45 A.M.

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	?"	SURFACE	40 FT.	24"	STEEL	SURFACE	40 FT.
2	20"	40 FT.	TOTAL DEPTH				
3							

COMMENTS:

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Tool Summary:

Date	11-24-17	**Date**	11-24-17	**Date**	11-24-17		
Run No.	1	**Run No.**	2	**Run No.**	3		
Tool Model	MSI COMBO TOOL	**Tool Model**	GEOVISTA E-LOG	**Tool Model**	MSI 60MM SONIC		
Tool SN	4183	**Tool SN**	4790	**Tool SN**	5050		
From	SURFACE	**From**	SURFACE	**From**	SURFACE		
To	504 FT.	**To**	504 FT.	**To**	504 FT.		
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON		
Truck No	900	**Truck No**	900	**Truck No**	900		
Operation Check	11-23-17	**Operation Check**	11-23-17	**Operation Check**	11-23-17		
Calibration Check	11-23-17	**Calibration Check**	11-23-17	**Calibration Check**	N/A		
Time Logged	4:00 A.M.	**Time Logged**	4:40 A.M.	**Time Logged**	5:10 A.M.		
Date	11-24-17	**Date**		**Date**		**Date**	
Run No.	4	**Run No.**	5	**Run No.**	6	**Run No.**	
Tool Model	MSI DEVIATION	**Tool Model**		**Tool Model**		**Tool Model**	
Tool SN	6002	**Tool SN**		**Tool SN**		**Tool SN**	
From	SURFACE	**From**		**From**		**From**	
To	504 FT.	**To**		**To**		**To**	
Recorded By	A. OLSON	**Recorded By**		**Recorded By**		**Recorded By**	
Truck No	900	**Truck No**		**Truck No**		**Truck No**	
Operation Check	11-23-17	**Operation Check**		**Operation Check**		**Operation Check**	
Calibration Check	N/A	**Calibration Check**		**Calibration Check**		**Calibration Check**	
Time Logged	5:50 A.M.	**Time Logged**		**Time Logged**		**Time Logged**	

Additional Comments:

Caliper Arms Used: 15 IN. **Calibration Points:** 8IN. & 23 IN.

E-Log Calibration Range: 10-1000 OHM-M **Calibration Points:** 10 & 1000 OHM-M

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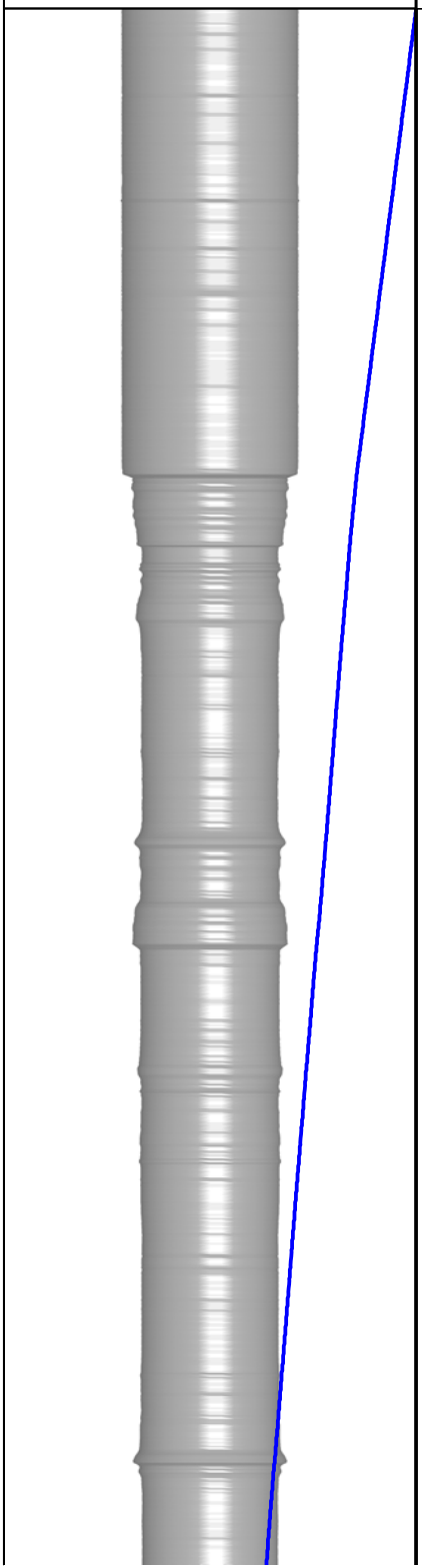
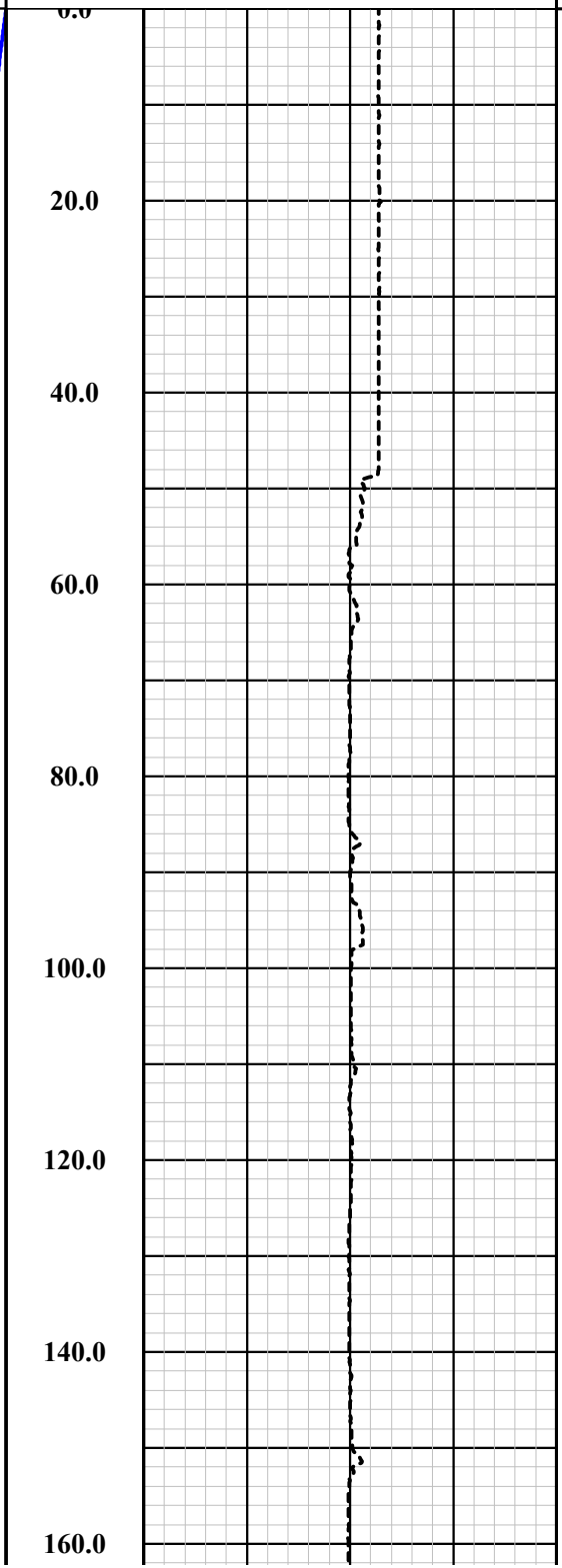
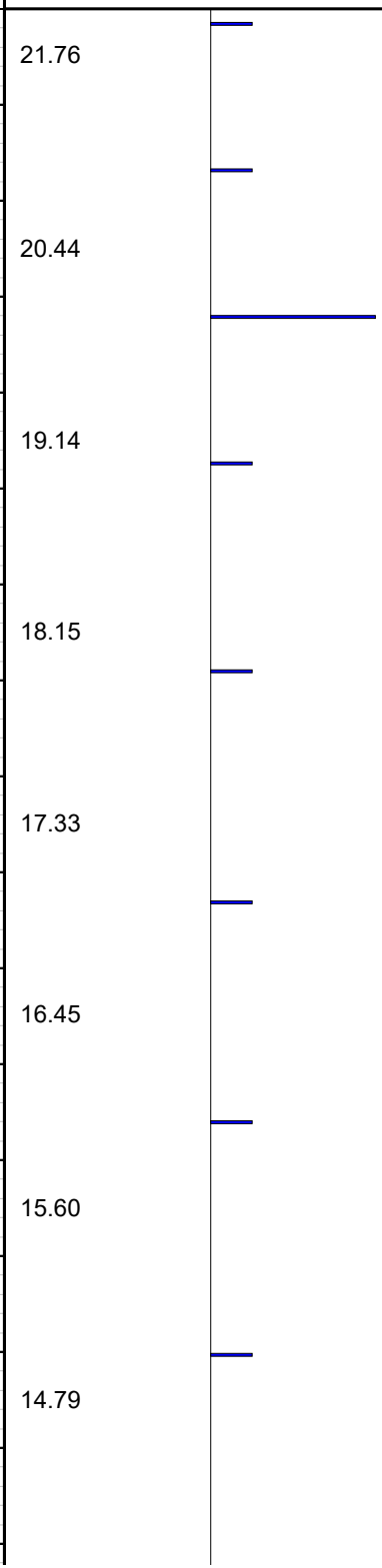
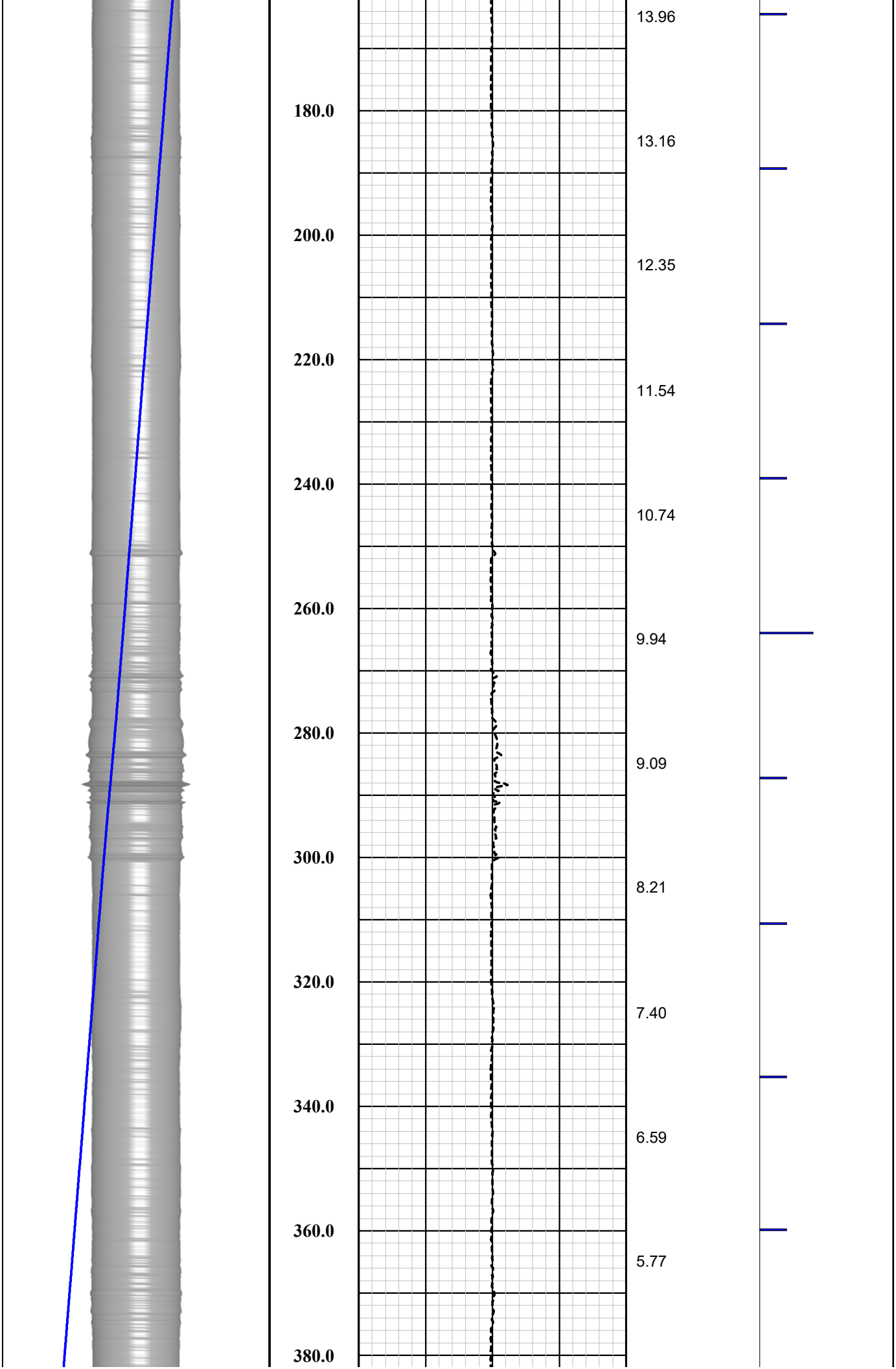
Total Volume	Depth	3-Arm Caliper	Cumulated Volume (cu.yd)
0 cu.yd 22.08	1in:20ft	0 Inches 40	
3-D View			Based on 14" OD Casing
-0°			





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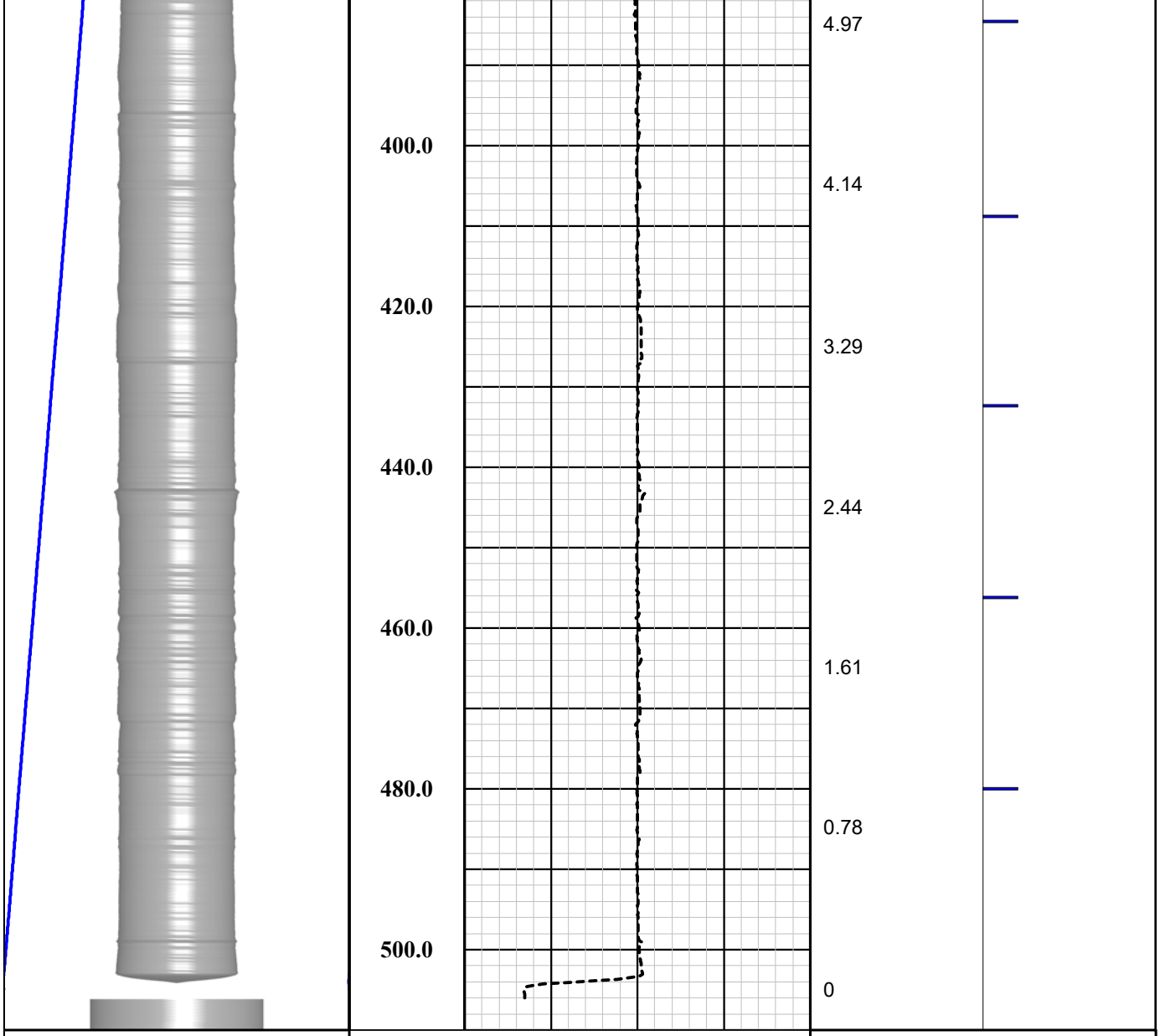
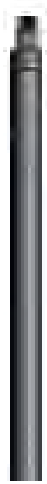


MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.



Single Conductor MSI Probe Top

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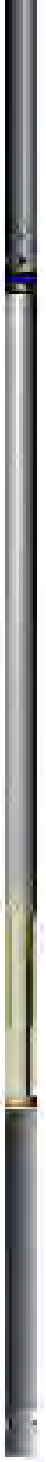
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)



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Available Arm Sizes: 3", 9", and 15"

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1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC
borehole geophysics & video services

Company	FLORENCE COPPER
Well	R-06
Field	FLORENCE COPPER
County	PINAL
State	ARIZONA

Final Caliper w / Volume Calculation Summary

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER
WELL ID	R-06
FIELD	FLORENCE COPPER
COUNTY	PINAL
STATE	ARIZONA

TYPE OF LOGS: 3-ARM CALIPER
MORE: W / VOLUME CALC.

LOCATION

SEC TWP RGE

OTHER SERVICES
E-LOG
SONIC
DEVIATION
NAT. GAMMA
TEMPERATURE
FLUID RESISTIVITY

PERMANENT DATUM	ELEVATION	K.B.
LOG MEAS. FROM	GROUND LEVEL ABOVE PERM. DATUM	D.F.
DRILLING MEAS. FROM	GROUND LEVEL	G.L.

DATE	3-27-18	TYPE FLUID IN HOLE	MUD
RUN No	1	MUD WEIGHT	N/A
TYPE LOG	VOLUME CALCULATION	VISCOSITY	N/A
DEPTH-DRILLER	1220 FT.	LEVEL	FULL
DEPTH-LOGGER	1210 FT.	MAX. REC. TEMP.	39.71 DEG. C
BTM LOGGED INTERVAL	1210 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.2 FT.
DRILLER / RIG#	CASCADE	LOGGING TRUCK	TRUCK #900
RECORDED BY / Logging Eng.	A. OLSON / M. QUINONES	TOOL STRING/SN	MSI COMBO TOOL SN 5543
WITNESSED BY	COLLIN - H&A	LOG TIME:ON SITE/OFF SITE	5:20 A.M.

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	? IN.	SURFACE	40 FT.	24 IN.	STEEL	SURFACE	40 FT.
2	20 IN.	40 FT.	500 FT.	14 IN.	STEEL	SURFACE	500 FT.
3	12 1/4 IN.	500 FT.	TOTAL DEPTH				

COMMENTS:

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Tool Summary:

Date	3-27-18	**Date**	3-27-18	**Date**	3-27-18		
Run No.	1	**Run No.**	2	**Run No.**	3		
Tool Model	MSI COMBO TOOL	**Tool Model**	GEOVISTA E-LOG	**Tool Model**	MSI 60mm SONIC		
Tool SN	5543	**Tool SN**	4035	**Tool SN**	5050		
From	SURFACE	**From**	400 FT.	**From**	400 FT.		
To	1210 FT.	**To**	1210 FT.	**To**	1210 FT.		
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON		
Truck No	900	**Truck No**	900	**Truck No**	900		
Operation Check	3-26-18	**Operation Check**	3-26-18	**Operation Check**	3-26-18		
Calibration Check	3-26-18	**Calibration Check**	3-26-18	**Calibration Check**	N/A		
Time Logged	6:50 A.M.	**Time Logged**	7:35 A.M.	**Time Logged**	8:30 A.M.		
Date	3-27-18	**Date**		**Date**		**Date**	
Run No.	4	**Run No.**	5	**Run No.**	6	**Run No.**	
Tool Model	QL DEVIATION	**Tool Model**		**Tool Model**		**Tool Model**	
Tool SN	142201	**Tool SN**		**Tool SN**		**Tool SN**	
From	500 FT.	**From**		**From**		**From**	
To	1200 FT.	**To**		**To**		**To**	
Recorded By	A. OLSON	**Recorded By**		**Recorded By**		**Recorded By**	
Truck No	900	**Truck No**		**Truck No**		**Truck No**	
Operation Check	1-24-18	**Operation Check**		**Operation Check**		**Operation Check**	
Calibration Check	N/A	**Calibration Check**		**Calibration Check**		**Calibration Check**	
Time Logged	9:20 A.M.	**Time Logged**		**Time Logged**		**Time Logged**	

Additional Comments:

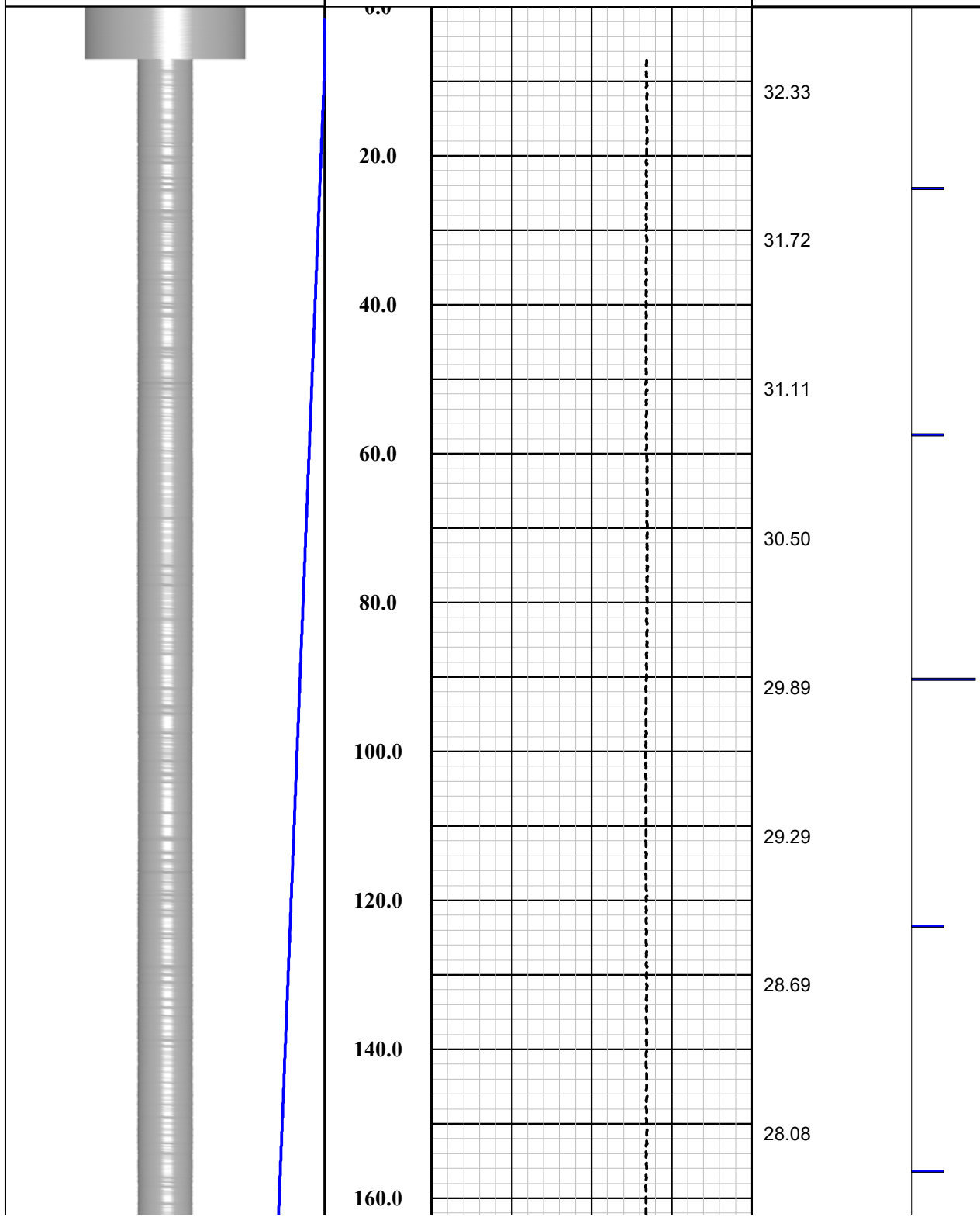
Caliper Arms Used: 15 IN. **Calibration Points:** 8 IN. & 23 IN.

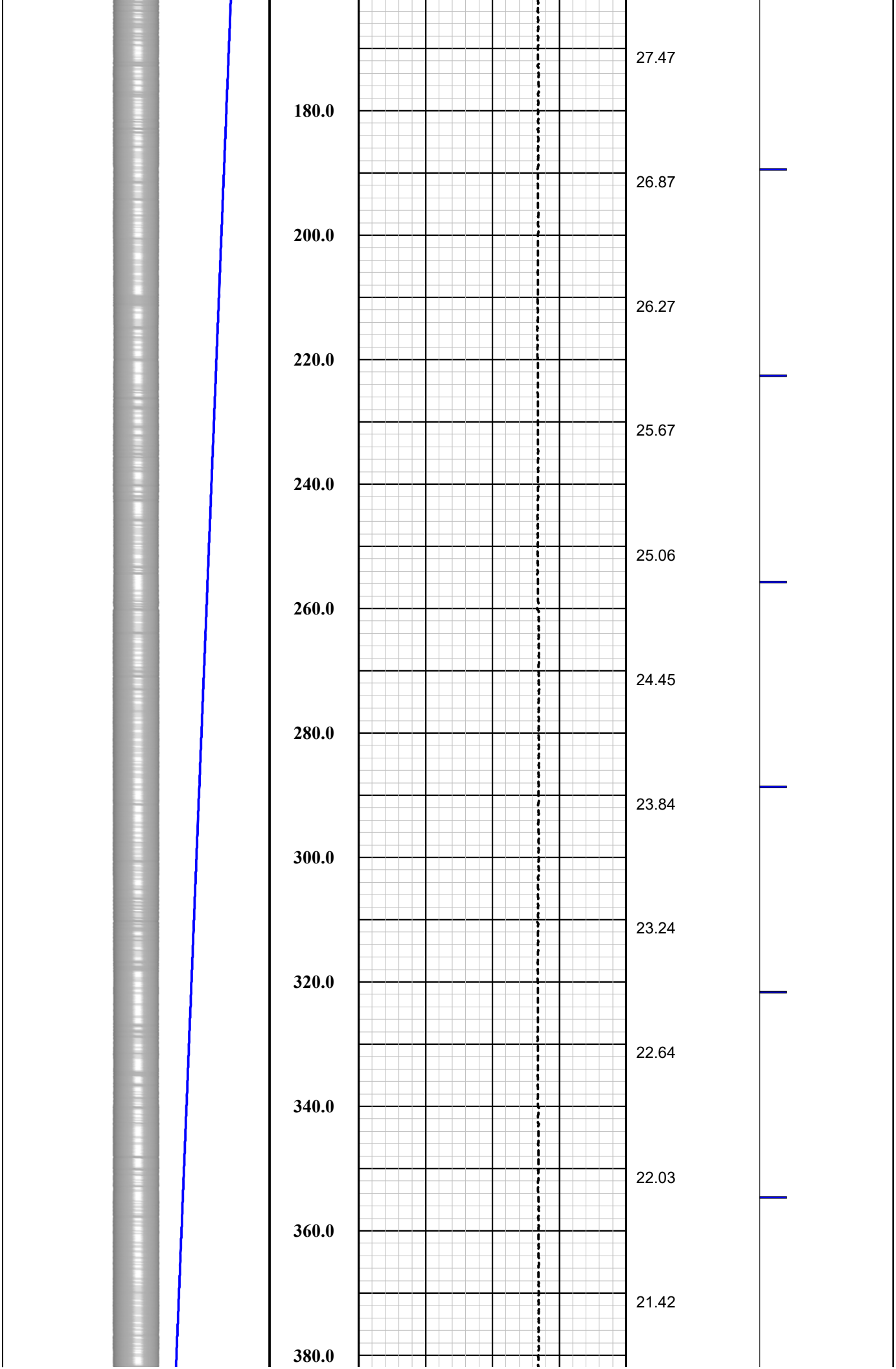
E-Log Calibration Range: 10-1000 OHM-M **Calibration Points:** 10 & 1000 OHM-M

Disclaimer:

All interpretations of log data are opinions based on inferences from electrical or other measurements. We do not guarantee the accuracy or correctness of any interpretations or recommendations and shall not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our employees or agents. These interpretations are also subject to our general terms and conditions set out in our current Service Invoice.

Total Volume	Depth	3-Arm Caliper	Cumulated Volume (cu.yd)
0 cu.yd 32.46	1in:20ft	0 Inches 20	
3-D View			Based on 5.5" OD Casing
-0°			

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240.0
260.0
280.0
300.0
320.0
340.0
360.0
380.0
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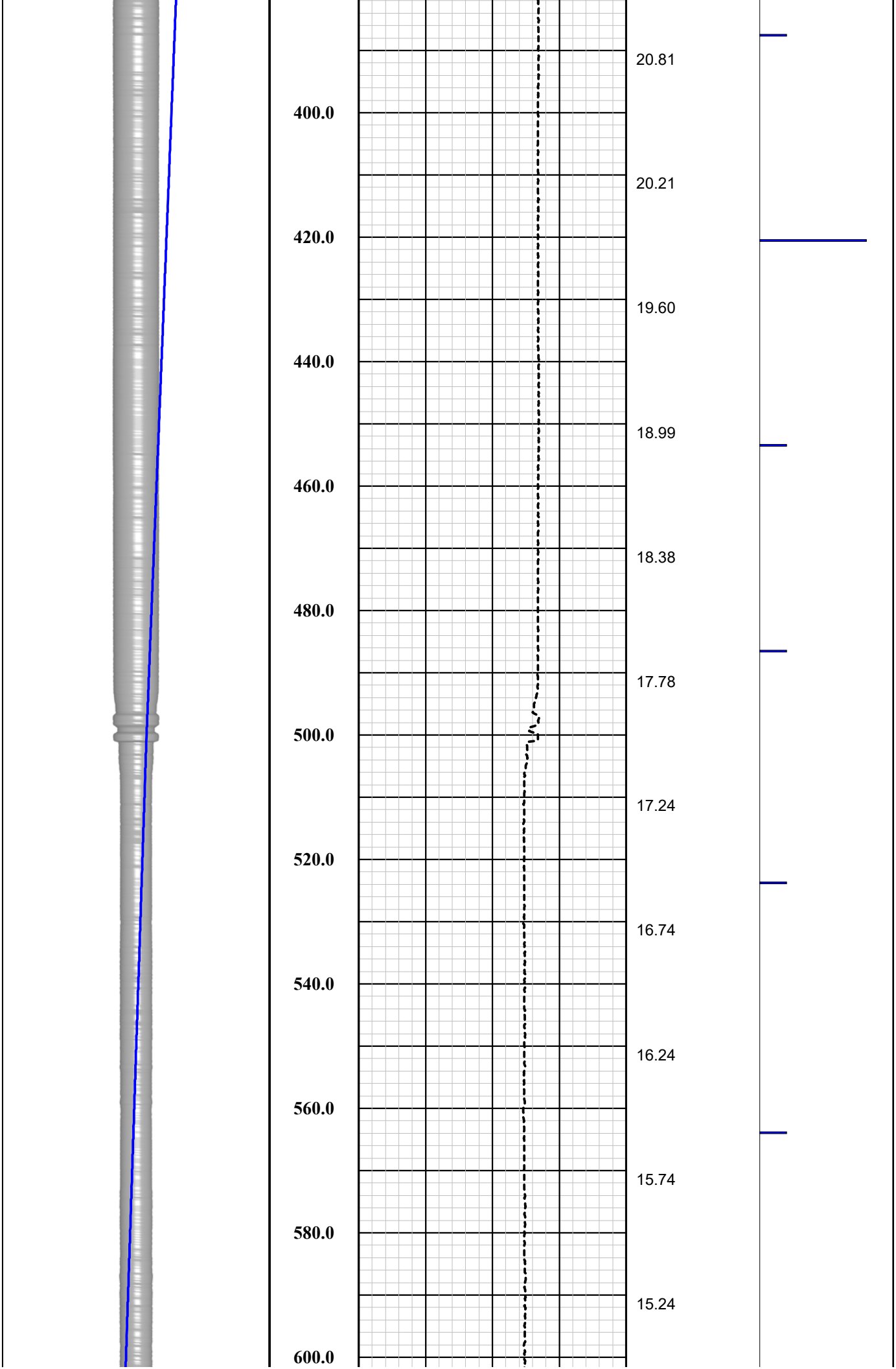
26.27
25.67
25.06
24.45
23.84
23.24
22.64
22.03
21.42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420.0
440.0
460.0
480.0
500.0
520.0
540.0
560.0
580.0
600.0
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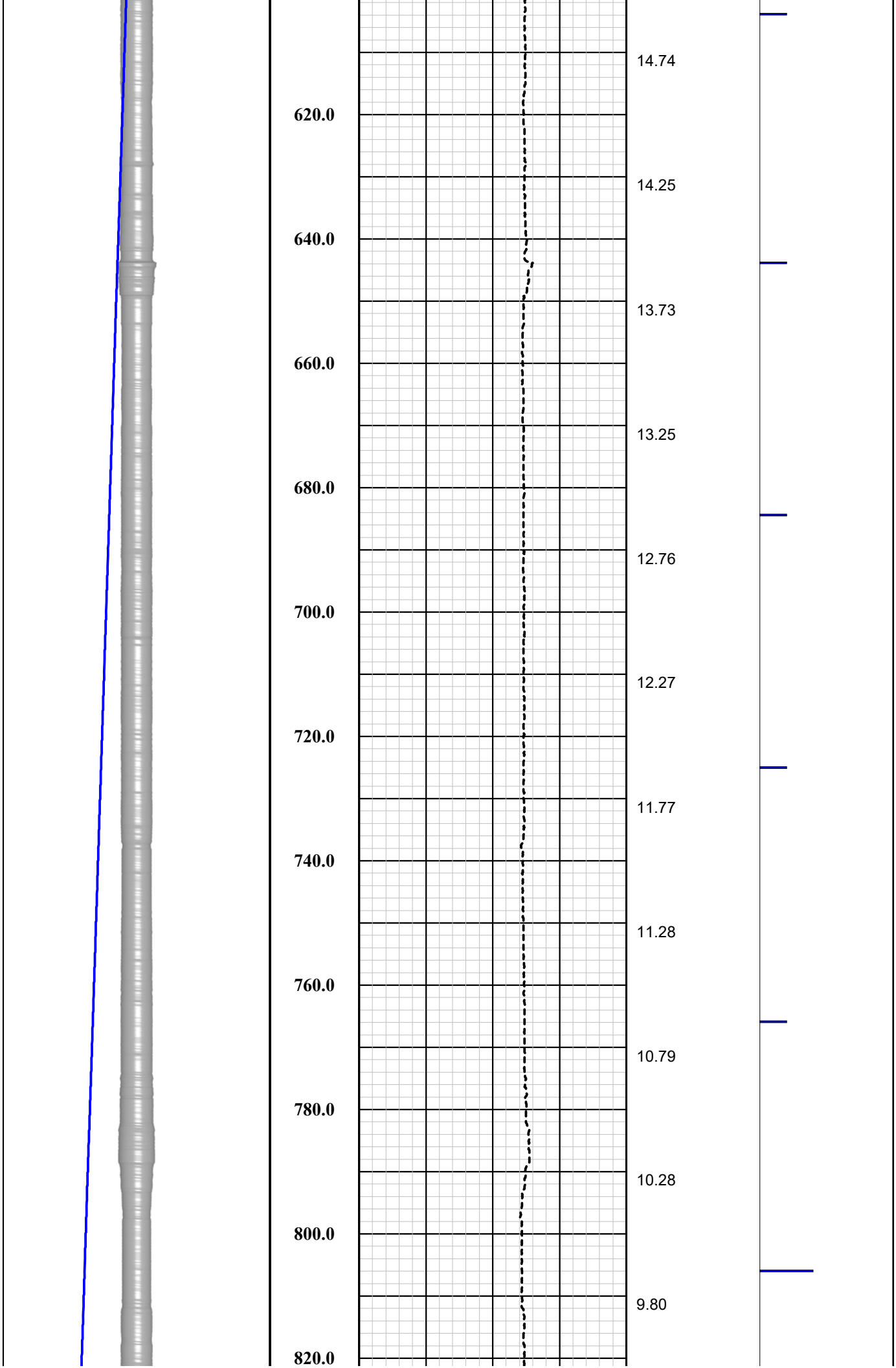
20.21
19.60
18.99
18.38
17.78
17.24
16.74
16.24
15.74
15.24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660.0
680.0
700.0
720.0
740.0
760.0
780.0
800.0
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14.25
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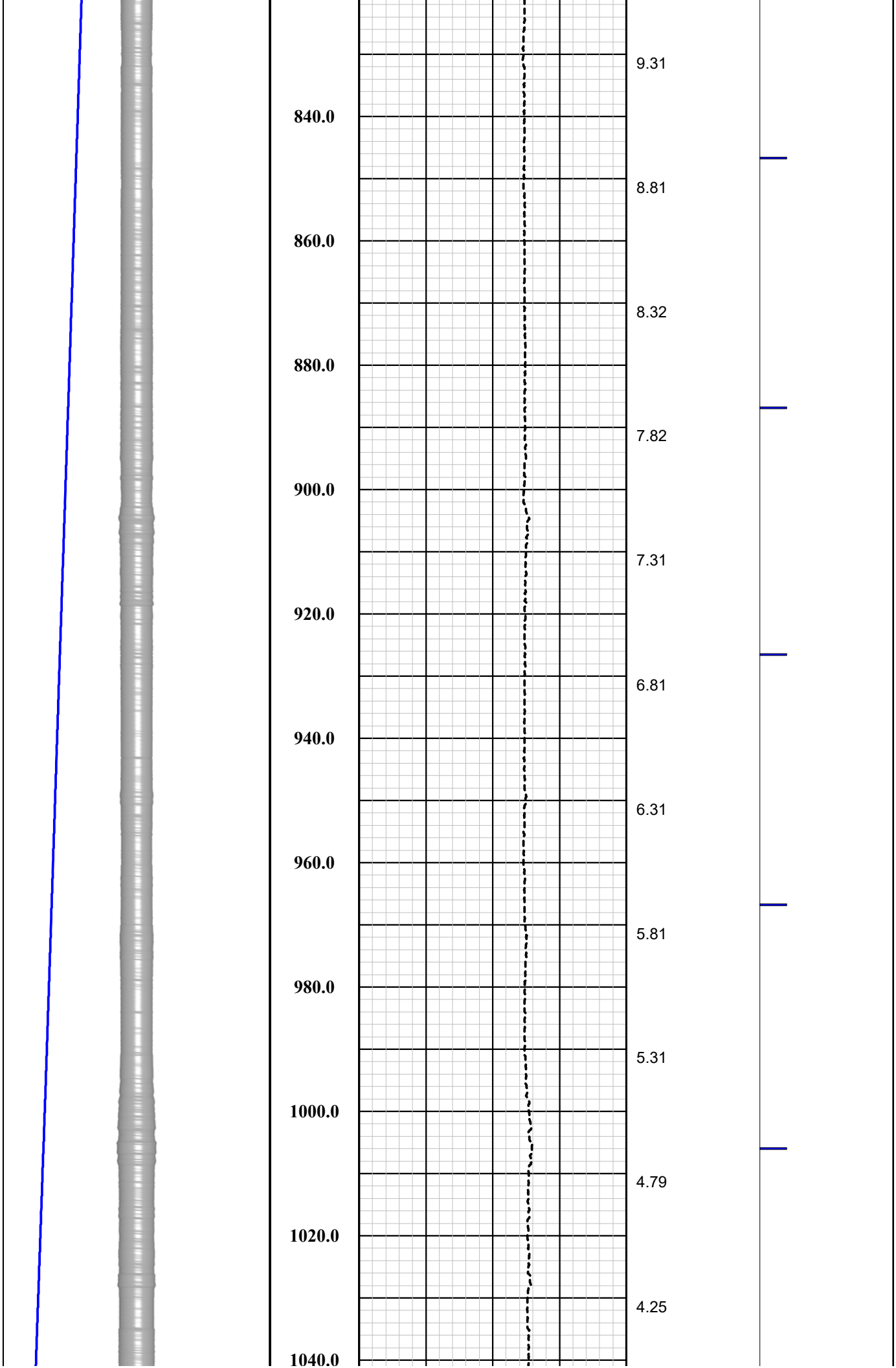
13.25
12.76
12.27
11.77
11.28
10.79
10.28
9.80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860.0
880.0
900.0
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940.0
960.0
980.0
1000.0
1020.0
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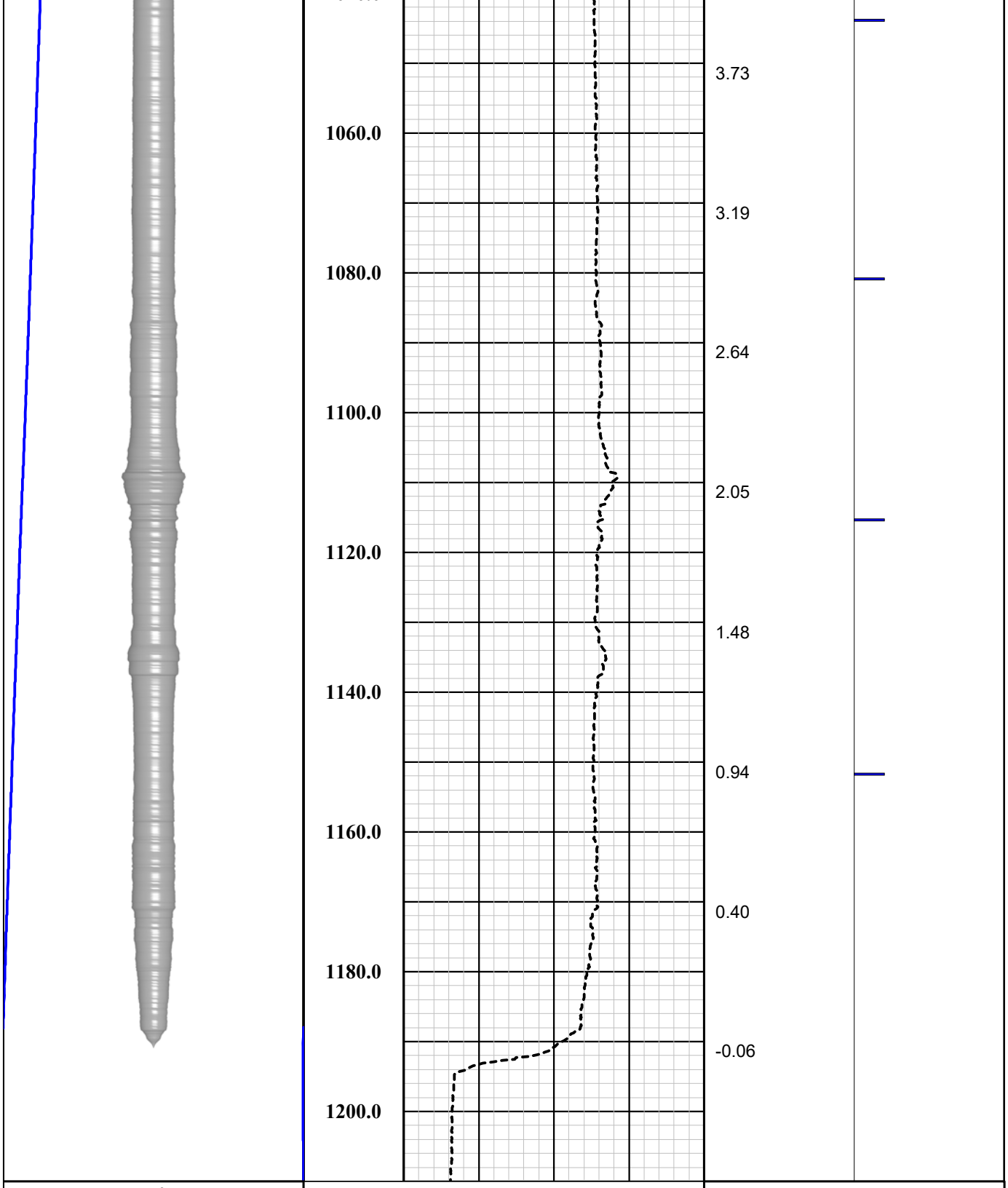
8.81
8.32
7.82
7.31
6.81
6.31
5.81
5.31
4.79
4.25



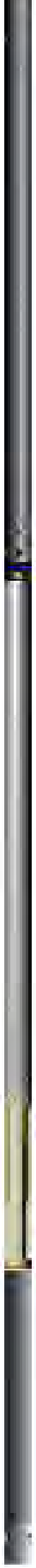
-0°		Based on 5.5" OD Casing
3-D View		
0 cu.yd 32.46	1in:20ft	0 Inches 20
Total Volume	**Depth**	**3-Arm Caliper**

Cumulated Volume (cu.yd)

MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.

Single Conductor MSI Probe Top



Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

3-Arm Caliper = 1.44 m (56.75 in)

Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC

Company	FLORENCE COPPER
Well	R-06
Field	FLORENCE COPPER

borehole geophysics & video services

County	PINAL
State	ARIZONA

Final Caliper w / Volume Calculation Summary

Drift Report

Wellbore DRIFT Interpretation

PREPARED ESPECIALLY FOR

FLORENCE COPPER

R-06

Friday - November 24, 2017

Southwest Exploration Services, LLC
borehole geophysics and video services

Southwest Exploration Services, LLC
(480) 926-4558

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC
(480) 926-4558

Company: FLORENCE COPPER **Well Owner:**

County: PINAL **State:** Arizona **Country:** United States

Well Number: R-06 **Survey Date:** Friday - November 24, 2017 **Magnetic Declination:** Declination Correction Not Used

Field: FLORENCE COPPER **Drift Calculation Methodology:** Balanced Tangential Method

Location:

Remarks:

Witness: ZACH - H&A **Vehicle No.:** 900 **Invoice No.:** **Operator:** M. QUINONES **Well Depth:** 500 Feet **Casing size:** 20 Inches

Tool: Compass - 6002 **Lat.:** **Long.:** **Sec.:** **Twp.:** **Rge.:**

MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BGR., degrees
0	0.82	272.61	0.00						
20	0.14	150.91	19.99	-0.015	-0.131	1.00	4.06	0.13' (1.56")	263.50
40	0.05	251.25	39.98	-0.039	-0.127	0.41	3.57	0.13' (1.56")	252.90
60	0.12	001.33	59.97	-0.021	-0.135	0.96	3.81	0.14' (1.68")	261.20
80	0.11	039.55	79.96	0.015	-0.122	0.84	1.52	0.12' (1.44")	276.90
100	0.12	339.95	99.96	0.049	-0.117	0.42	2.31	0.13' (1.56")	292.90
120	0.06	283.27	119.95	0.071	-0.134	0.13	2.21	0.15' (1.80")	297.90
140	0.14	006.59	139.94	0.098	-0.141	0.43	3.09	0.17' (2.04")	304.60
160	0.29	024.30	159.93	0.168	-0.117	0.83	0.72	0.21' (2.52")	325.10
180	0.19	057.00	179.92	0.232	-0.068	0.95	1.31	0.24' (2.88")	343.60
200	0.25	038.04	199.91	0.284	-0.013	0.37	0.77	0.28' (3.36")	357.30
220	0.30	007.31	219.90	0.370	0.021	1.00	1.23	0.37' (4.44")	003.20
240	0.42	034.96	239.89	0.482	0.070	1.00	1.11	0.49' (5.88")	008.20
260	0.51	037.65	259.88	0.613	0.166	0.34	0.11	0.63' (7.56")	015.20
280	0.43	047.65	279.87	0.734	0.276	0.93	0.41	0.78' (9.36")	020.60
300	1.31	015.53	299.86	1.005	0.393	0.78	1.29	1.08' (12.96")	021.30
320	0.44	024.18	319.85	1.295	0.486	0.53	0.35	1.38' (16.56")	020.60
340	0.33	044.37	339.84	1.406	0.558	0.00	0.82	1.51' (18.12")	021.60

True Vertical Depth: 499.76' **Final Drift Distance:** 2.41' (28.92") **Final Drift Bearing:** 32.50°

Note: Magnetic Declination is not used because it is not a factor in the calculation of well drift or alignment. Magnetic Declination is only important if attempting to hit a target or miss another well and then it is included in the calculations.

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC
(480) 926-4558

R-06

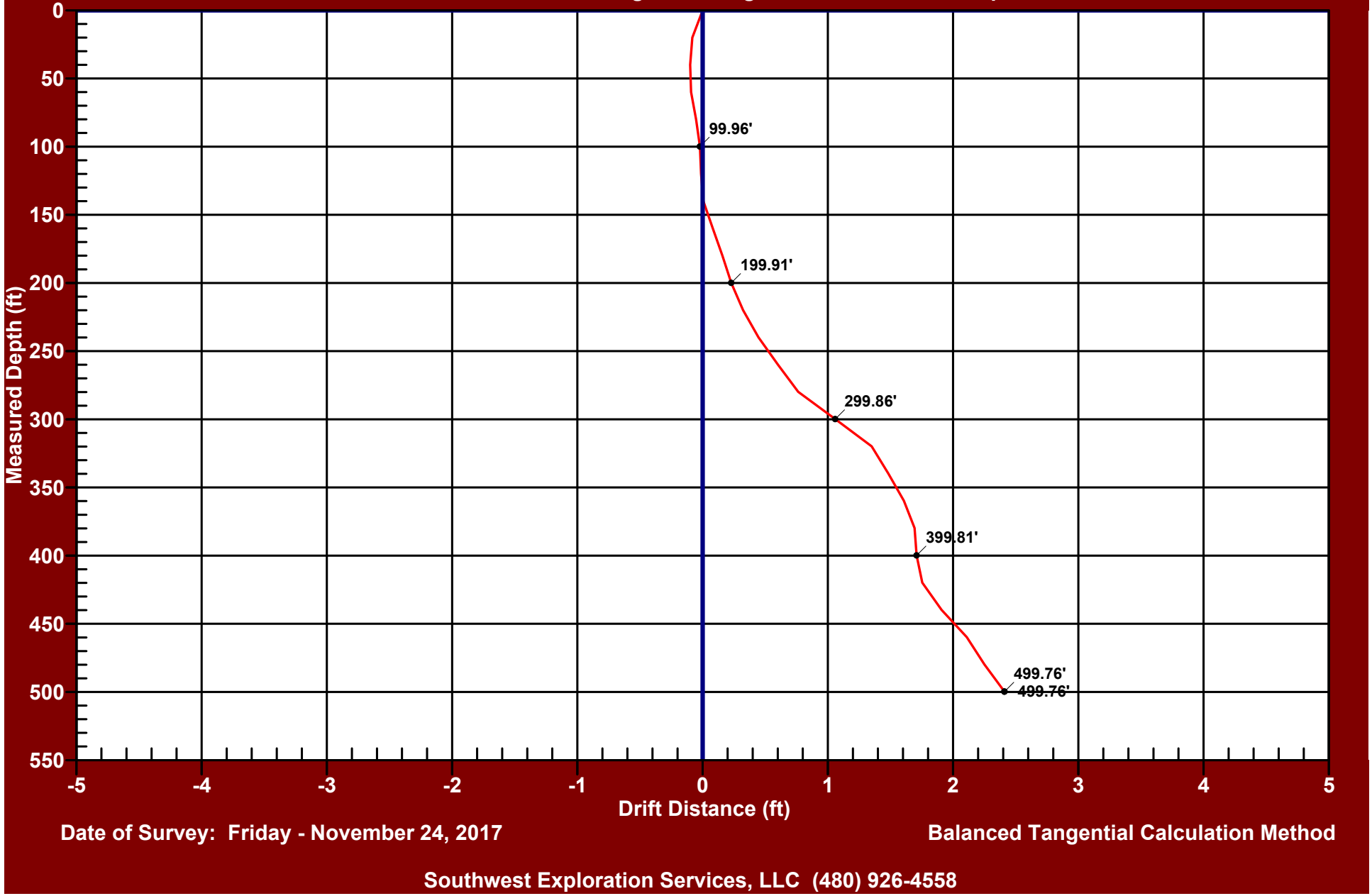
MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BRG., degrees
360	0.35°	033.01°	359.83	1.498	0.632	0.56	0.46	1.63' (19.56")	022.90
380	0.23°	081.11°	379.82	1.555	0.705	0.73	1.89	1.71' (20.52")	024.40
400	0.07°	144.26°	399.81	1.551	0.752	0.88	2.43	1.72' (20.64")	025.90
420	0.33°	075.64°	419.80	1.555	0.815	0.20	2.62	1.76' (21.12")	027.70
440	0.71°	046.77°	439.79	1.654	0.961	0.97	1.16	1.91' (22.92")	030.20
460	0.44°	023.34°	459.78	1.809	1.082	0.96	0.94	2.11' (25.32")	030.90
480	0.46°	061.37°	479.77	1.918	1.183	0.12	1.51	2.25' (27.00")	031.70
500	0.47°	029.48°	499.76	2.028	1.294	0.81	1.28	2.41' (28.92")	032.50

True Vertical Depth: 499.76' **Final Drift Distance: 2.41' (28.92")** **Final Drift Bearing: 32.50°**

PLANE OF DRIFT VIEW - R-06

FLORENCE COPPER

Drift Distance = 2.41 Feet Drift Bearing = 32.5 Degrees True Vertical Depth = 499.76 Feet



Date of Survey: Friday - November 24, 2017

Balanced Tangential Calculation Method

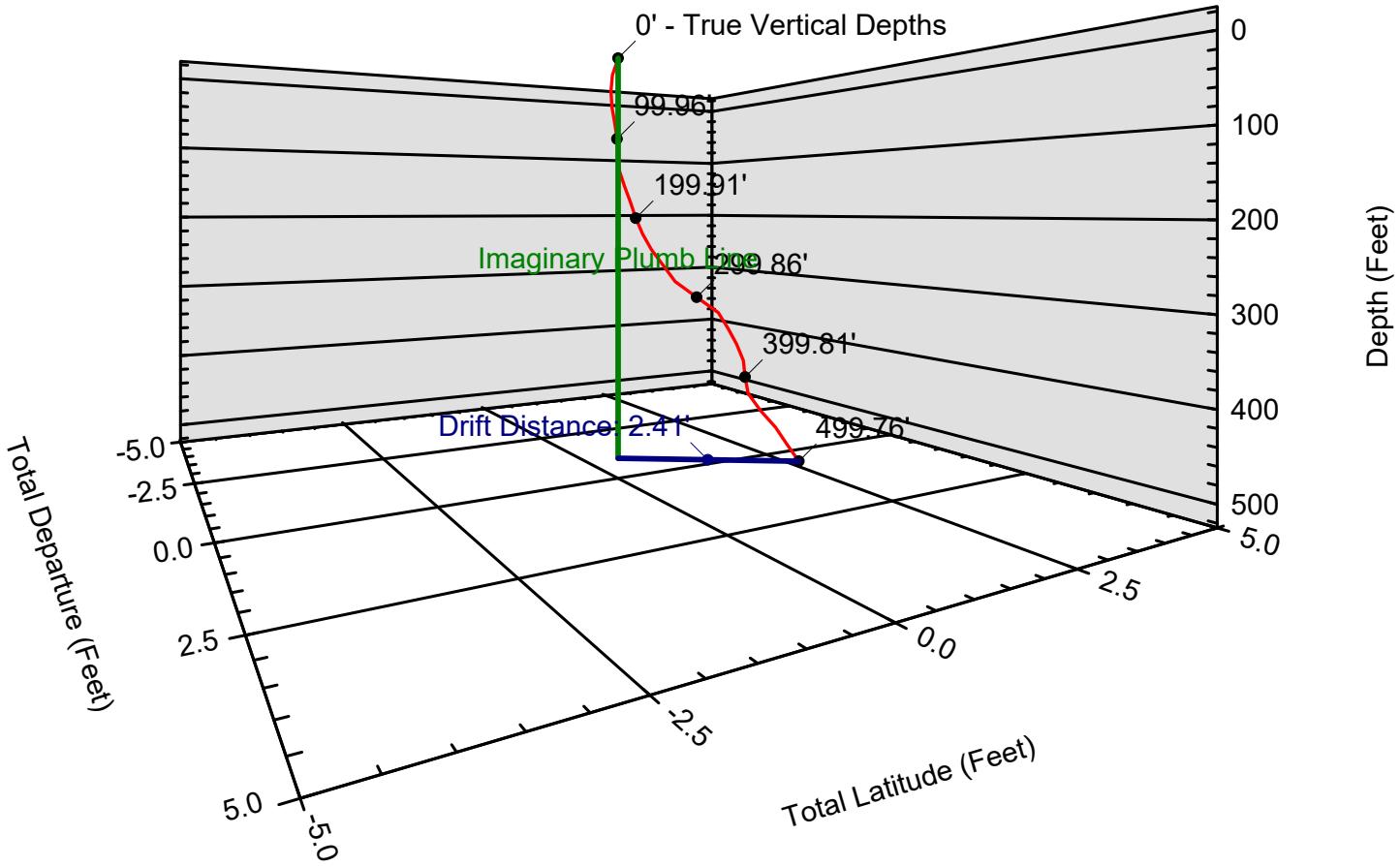
Southwest Exploration Services, LLC (480) 926-4558

3D PROJECTION VIEW - R-06

FLORENCE COPPER

Drift Distance = 2.41 Feet **Drift Bearing = 32.5 Degrees** **True Vertical Depth = 499.76 Feet**

241.0



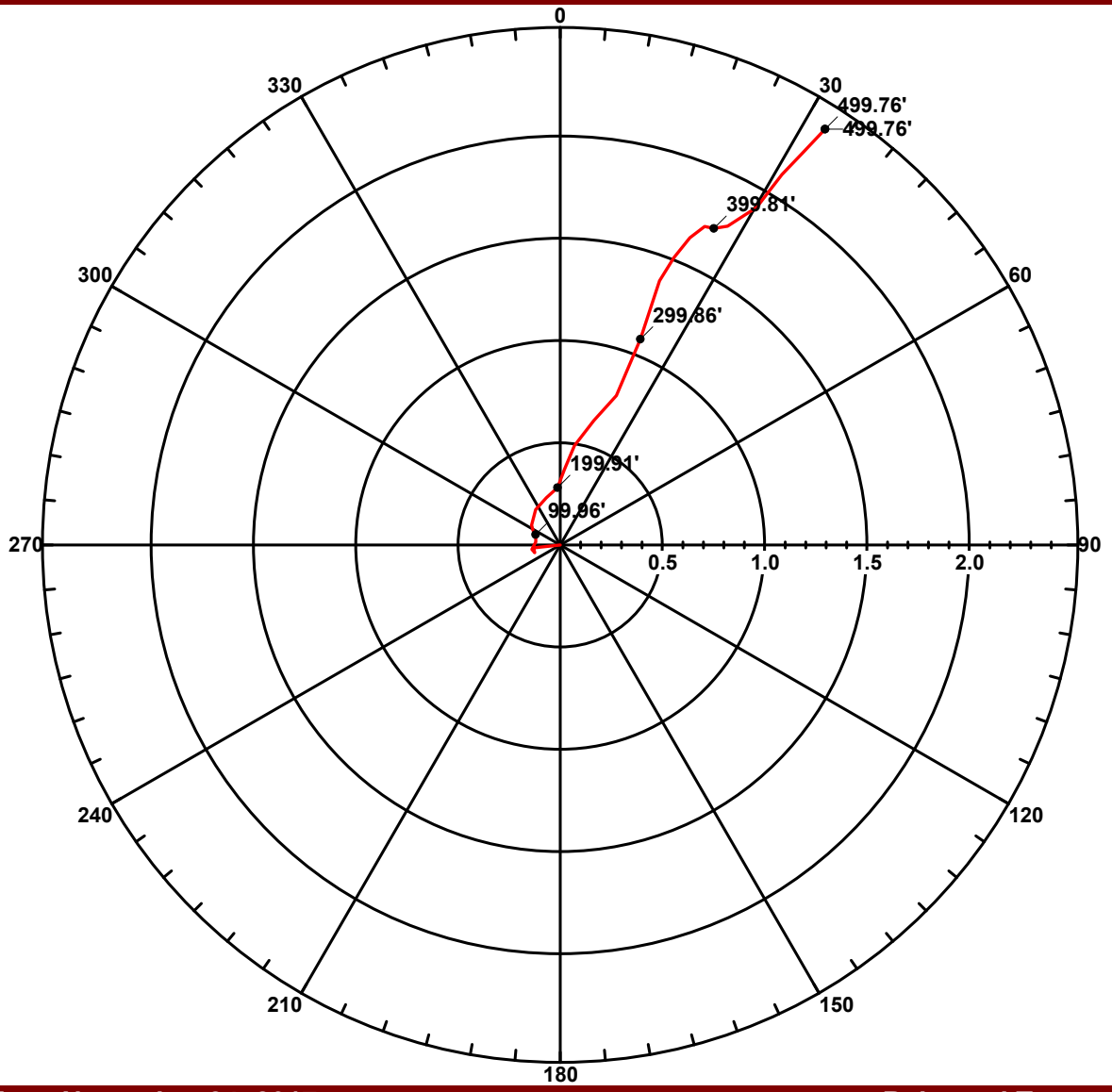
Date of Survey: Friday - November 24, 2017 **Balanced Tangential Calculation Method**

Southwest Exploration Services, LLC (480) 926-4558

POLAR VIEW - R-06

FLORENCE COPPER

Drift Distance = 2.41 Feet Drift Bearing = 32.5 Degrees True Vertical Depth = 499.76 Feet



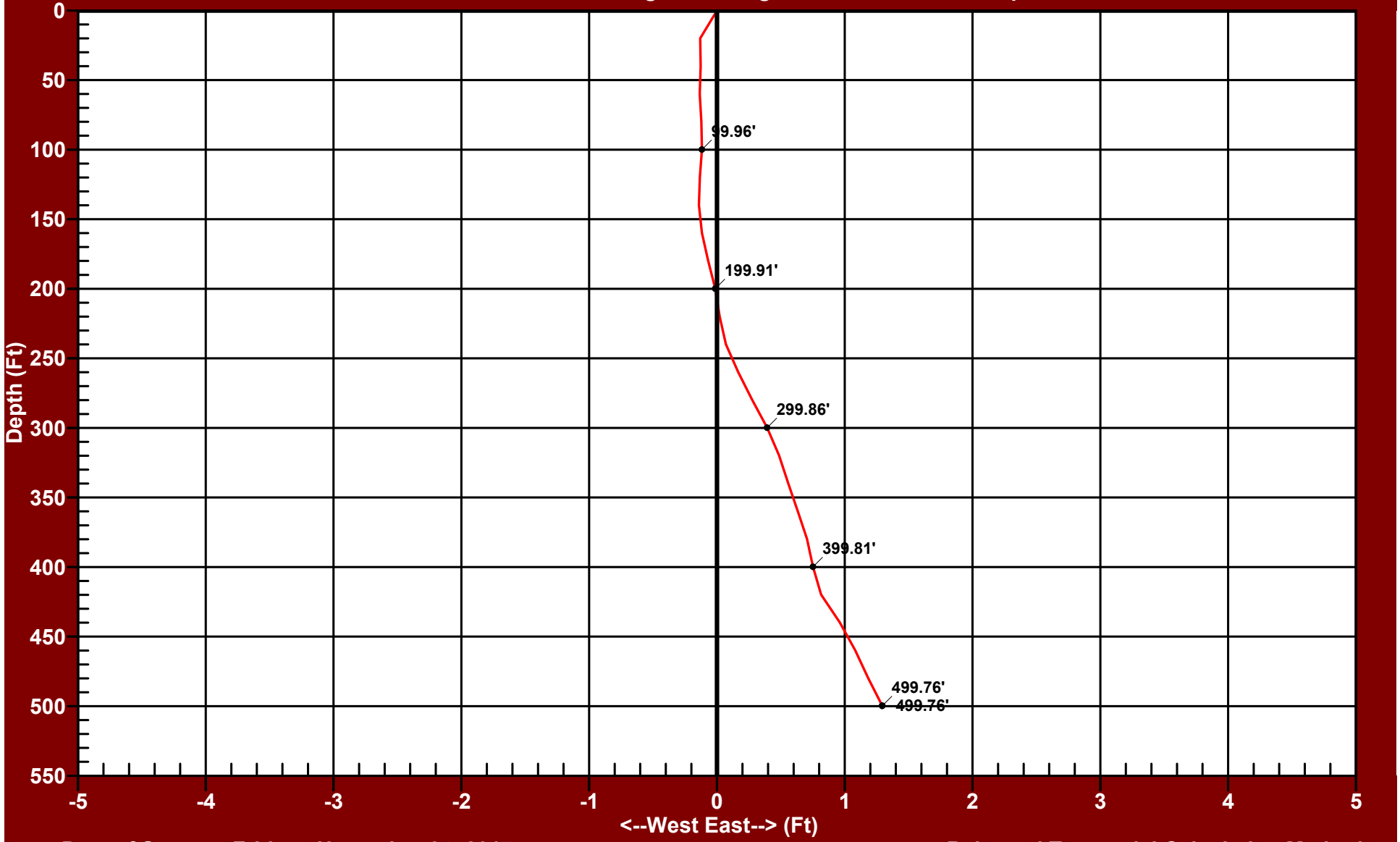
Date of Survey: Friday - November 24, 2017 **Balanced Tangential Calculation Method**

Southwest Exploration Services, LLC (480) 926-4558

EASTING RECTANGULAR VIEW - R-06

FLORENCE COPPER

Drift Distance = 2.41 Feet Drift Bearing = 32.5 Degrees True Vertical Depth = 499.76 Feet



Date of Survey: Friday - November 24, 2017

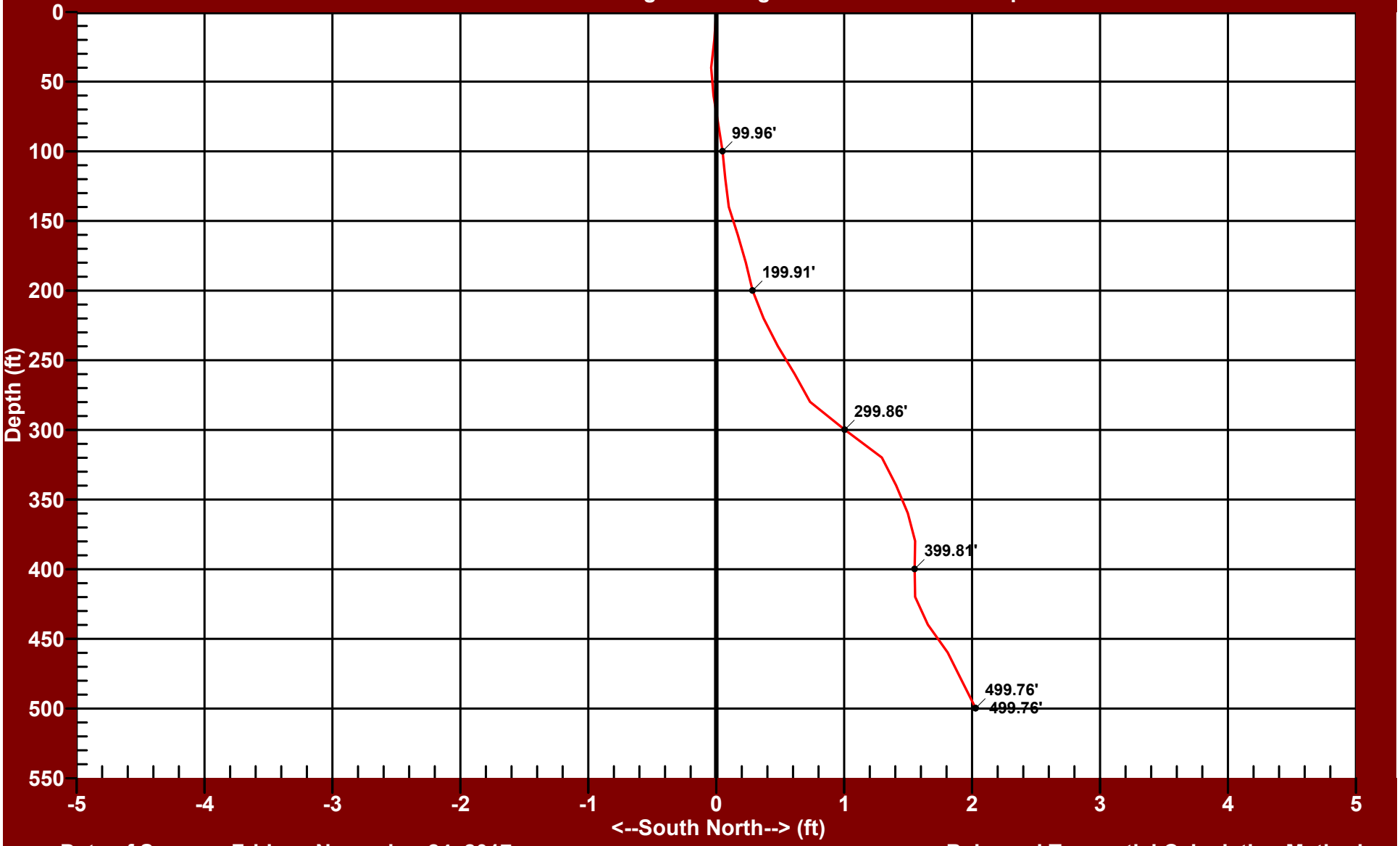
Balanced Tangential Calculation Method

Southwest Exploration Services, LLC (480) 926-4558

NORTHING RECTANGULAR VIEW - R-06

FLORENCE COPPER

Drift Distance = 2.41 Feet Drift Bearing = 32.5 Degrees True Vertical Depth = 499.76 Feet



Date of Survey: Friday - November 24, 2017

Balanced Tangential Calculation Method

Southwest Exploration Services, LLC (480) 926-4558

Drift Report

Wellbore DRIFT Interpretation

PREPARED ESPECIALLY FOR

FLORENCE COPPER

R-06

Tuesday - March 27, 2018

Southwest Exploration Services, LLC
borehole geophysics and video services

Southwest Exploration Services, LLC
(480) 926-4558

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC
(480) 926-4558

Company: FLORENCE COPPER **Well Owner:**

County: PINAL **State:** ARIZONA **Country:** USA

Well Number: R-06 **Survey Date:** Tuesday - March 27, 2018 **Magnetic Declination:** Declination Correction Not Used

Field: FLORENCE COPPER **Drift Calculation Methodology:** Balanced Tangential Method

Location:

Remarks:

Witness: COLLIN - H&A **Vehicle No.:** 900 **Invoice No.:** **Operator:** A. OLSON **Well Depth:** 1200 Feet **Casing size:** 12.25 Inches

Tool: Compass - 142201 **Lat.:** **Long.:** **Sec.:** **Twp.:** **Rge.:**

MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BGR., degrees
500	0.20	003.30	500.00						
520	0.30	157.30	519.99	-0.013	0.022	0.95	6.82	0.03' (.36")	121.20
540	0.40	098.50	539.98	-0.072	0.111	0.18	3.44	0.13' (1.56")	122.80
560	0.20	070.20	559.97	-0.070	0.213	0.37	1.71	0.22' (2.64")	108.30
580	0.20	062.50	579.96	-0.042	0.277	0.20	0.47	0.28' (3.36")	098.60
600	0.30	074.90	599.95	-0.012	0.359	0.94	0.76	0.36' (4.32")	092.00
620	0.10	124.30	619.94	-0.008	0.424	1.00	2.93	0.42' (5.04")	091.10
640	0.20	185.00	639.93	-0.053	0.435	0.58	3.54	0.44' (5.28")	096.90
660	0.30	138.40	659.92	-0.127	0.467	0.98	2.77	0.48' (5.76")	105.20
680	0.30	142.60	679.91	-0.208	0.534	0.99	0.26	0.57' (6.84")	111.30
700	0.50	118.10	699.90	-0.291	0.643	0.55	1.49	0.71' (8.52")	114.30
720	0.50	108.10	719.89	-0.359	0.803	0.99	0.61	0.88' (10.56")	114.10
740	0.60	095.10	739.88	-0.395	0.990	0.90	0.79	1.07' (12.84")	111.80
760	0.60	111.90	759.87	-0.443	1.191	0.33	1.02	1.27' (15.24")	110.40
780	0.60	098.80	779.86	-0.498	1.392	0.22	0.80	1.48' (17.76")	109.70
800	0.30	064.60	799.85	-0.492	1.543	0.36	2.06	1.62' (19.44")	107.70
820	0.40	102.60	819.84	-0.485	1.658	0.86	2.28	1.73' (20.76")	106.30
840	0.30	143.30	839.83	-0.542	1.757	0.96	2.43	1.84' (22.08")	107.10

True Vertical Depth: 1199.66' **Final Drift Distance:** 6.43' (77.16") **Final Drift Bearing:** 121.10°

Note: Magnetic Declination is not used because it is not a factor in the calculation of well drift or alignment. Magnetic Declination is only important if attempting to hit a target or miss another well and then it is included in the calculations.

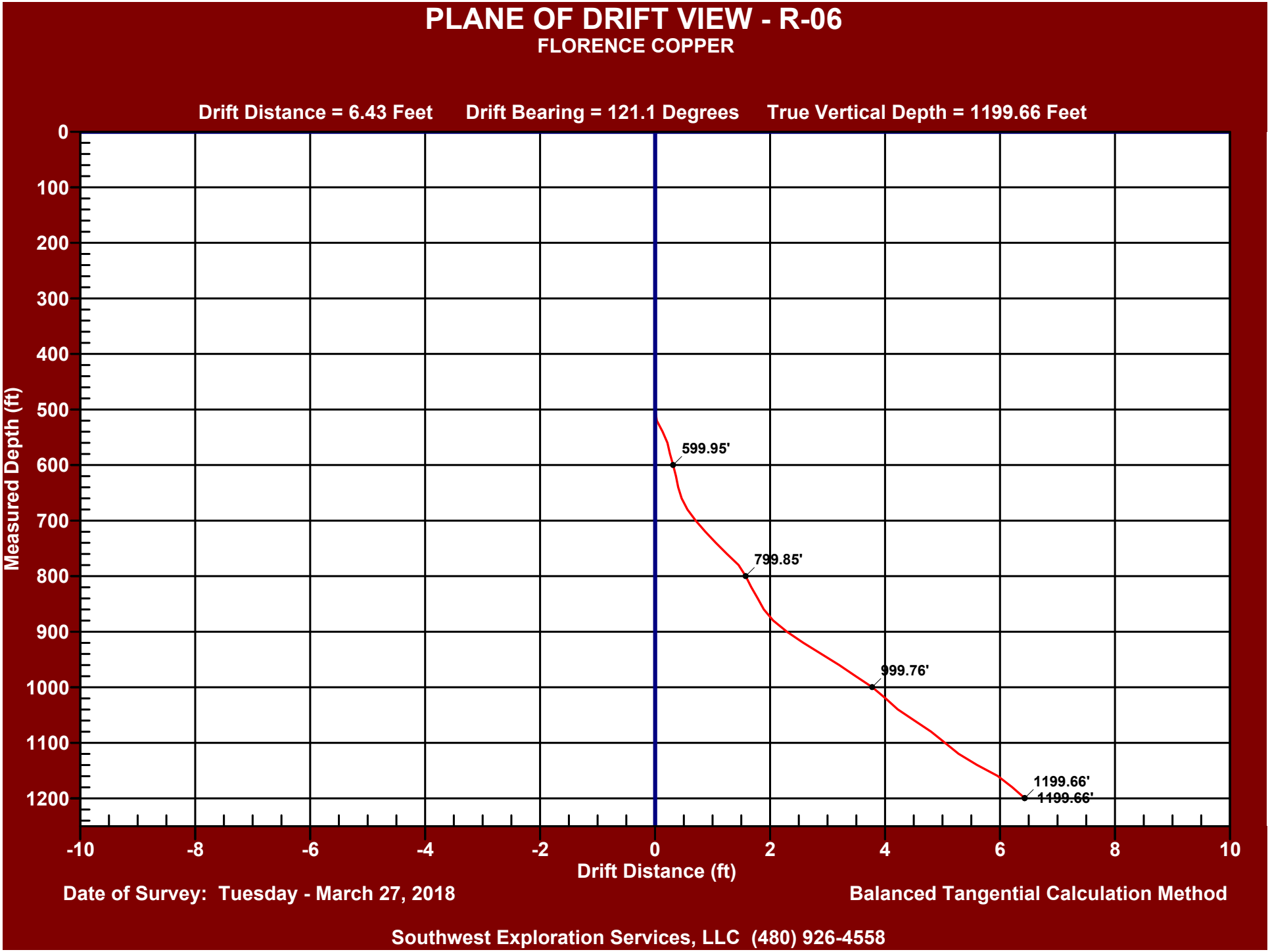
WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC
(480) 926-4558

R-06

MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BRG., degrees
860	0.40°	149.30°	859.82	-0.644	1.824	0.40	0.37	1.93' (23.16")	109.40
880	0.60°	135.30°	879.81	-0.778	1.933	1.00	0.85	2.08' (24.96")	111.90
900	0.80°	128.80°	899.80	-0.940	2.115	1.00	0.40	2.31' (27.72")	114.00
920	0.80°	120.00°	919.79	-1.097	2.345	0.32	0.54	2.59' (31.08")	115.10
940	1.00°	125.70°	939.78	-1.269	2.608	0.92	0.35	2.90' (34.80")	115.90
960	0.80°	125.70°	959.77	-1.452	2.863	0.74	0.01	3.21' (38.52")	116.90
980	0.80°	129.00°	979.76	-1.621	3.085	0.58	0.20	3.49' (41.88")	117.70
1,000	0.90°	126.40°	999.76	-1.802	3.320	0.06	0.16	3.78' (45.36")	118.50
1,020	0.50°	139.90°	1,019.75	-1.962	3.503	0.60	0.82	4.01' (48.12")	119.30
1,040	0.70°	129.00°	1,039.74	-2.106	3.654	0.68	0.66	4.22' (50.64")	120.00
1,060	1.00°	123.10°	1,059.73	-2.278	3.895	0.84	0.36	4.51' (54.12")	120.30
1,080	0.70°	144.50°	1,079.72	-2.473	4.112	0.11	1.30	4.80' (57.60")	121.00
1,100	0.80°	145.50°	1,099.71	-2.688	4.262	0.94	0.06	5.04' (60.48")	122.20
1,120	0.70°	106.60°	1,119.70	-2.838	4.458	0.92	2.33	5.28' (63.36")	122.50
1,140	1.20°	106.80°	1,139.69	-2.933	4.776	0.01	0.03	5.60' (67.20")	121.60
1,160	0.90°	101.50°	1,159.68	-3.025	5.130	0.72	0.32	5.96' (71.52")	120.50
1,180	0.70°	152.50°	1,179.67	-3.165	5.340	0.46	3.01	6.21' (74.52")	120.70
1,200	0.70°	111.50°	1,199.66	-3.318	5.510	0.84	2.45	6.43' (77.16")	121.10

Page No. 2 **True Vertical Depth: 1199.66'** **Final Drift Distance: 6.43' (77.16")** **Final Drift Bearing: 121.10°**

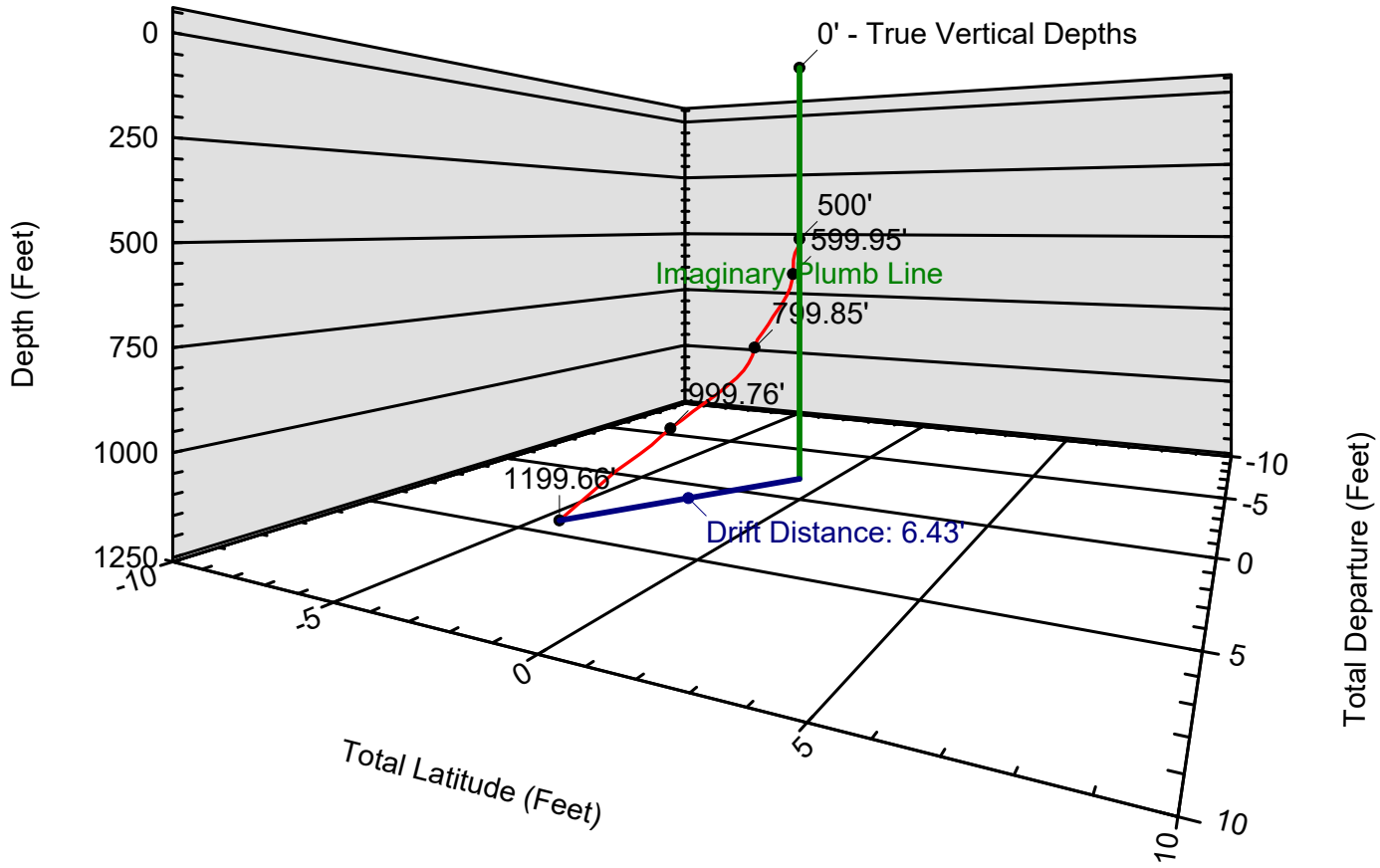

PLANE OF DRIFT VIEW - R-06
FLORENCE COPPER
Drift Distance = 6.43 Feet
Drift Bearing = 121.1 Degrees
True Vertical Depth = 1199.66 Feet
Measured Depth (ft)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
599.95'
799.85'
999.76'
1199.66'
1199.66'
-10
-8
-6
-4
-2
0
2
4
6
8
10
Drift Distance (ft)
Date of Survey: Tuesday - March 27, 2018
Balanced Tangential Calculation Method
Southwest Exploration Services, LLC (480) 926-4558

3D PROJECTION VIEW - R-06

FLORENCE COPPER

Drift Distance = 6.43 Feet Drift Bearing = 121.1 Degrees True Vertical Depth = 1199.66 Feet

296.0



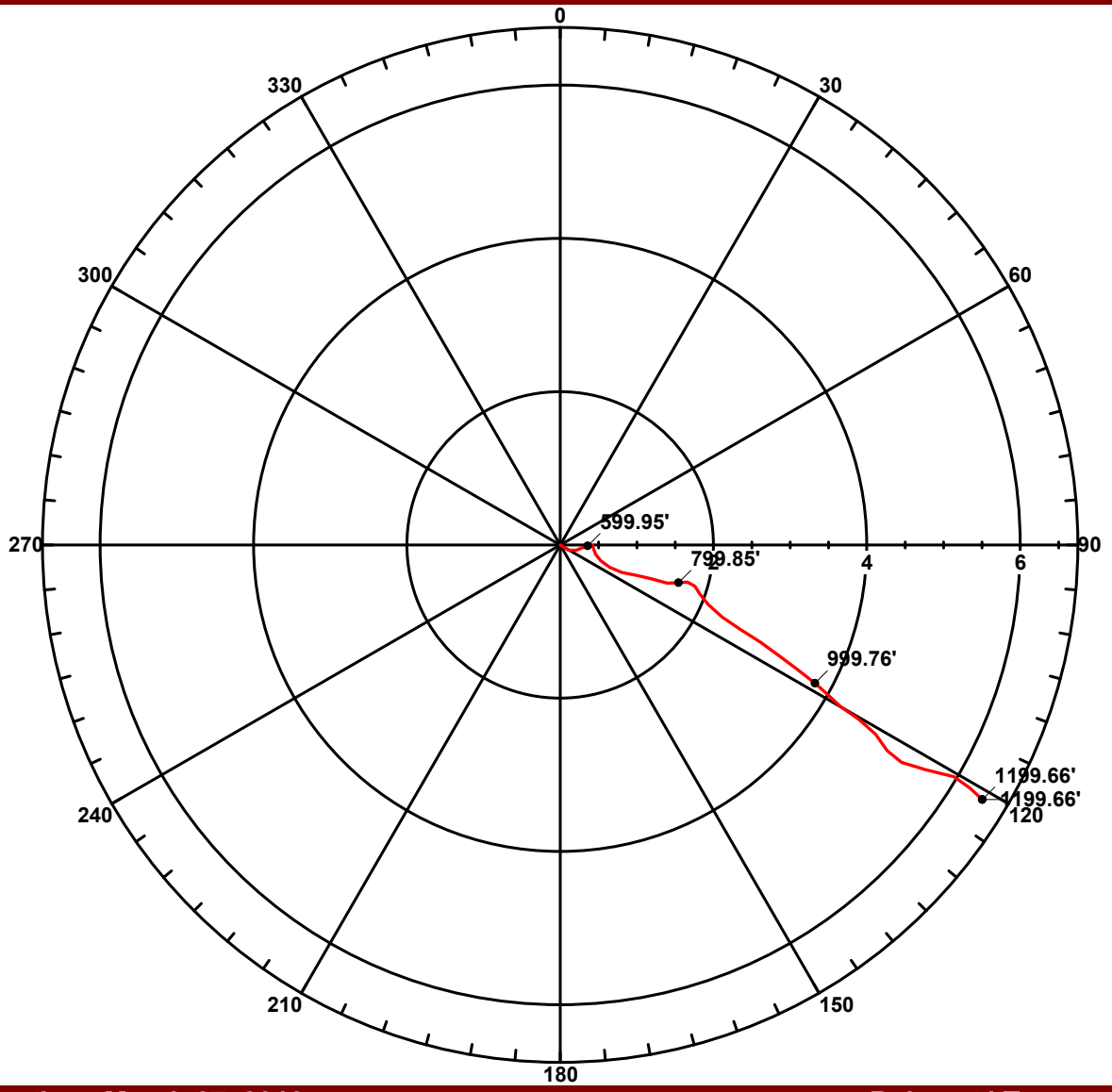
Date of Survey: Tuesday - March 27, 2018 **Balanced Tangential Calculation Method**

Southwest Exploration Services, LLC (480) 926-4558

POLAR VIEW - R-06

FLORENCE COPPER

Drift Distance = 6.43 Feet **Drift Bearing = 121.1 Degrees** **True Vertical Depth = 1199.66 Feet**



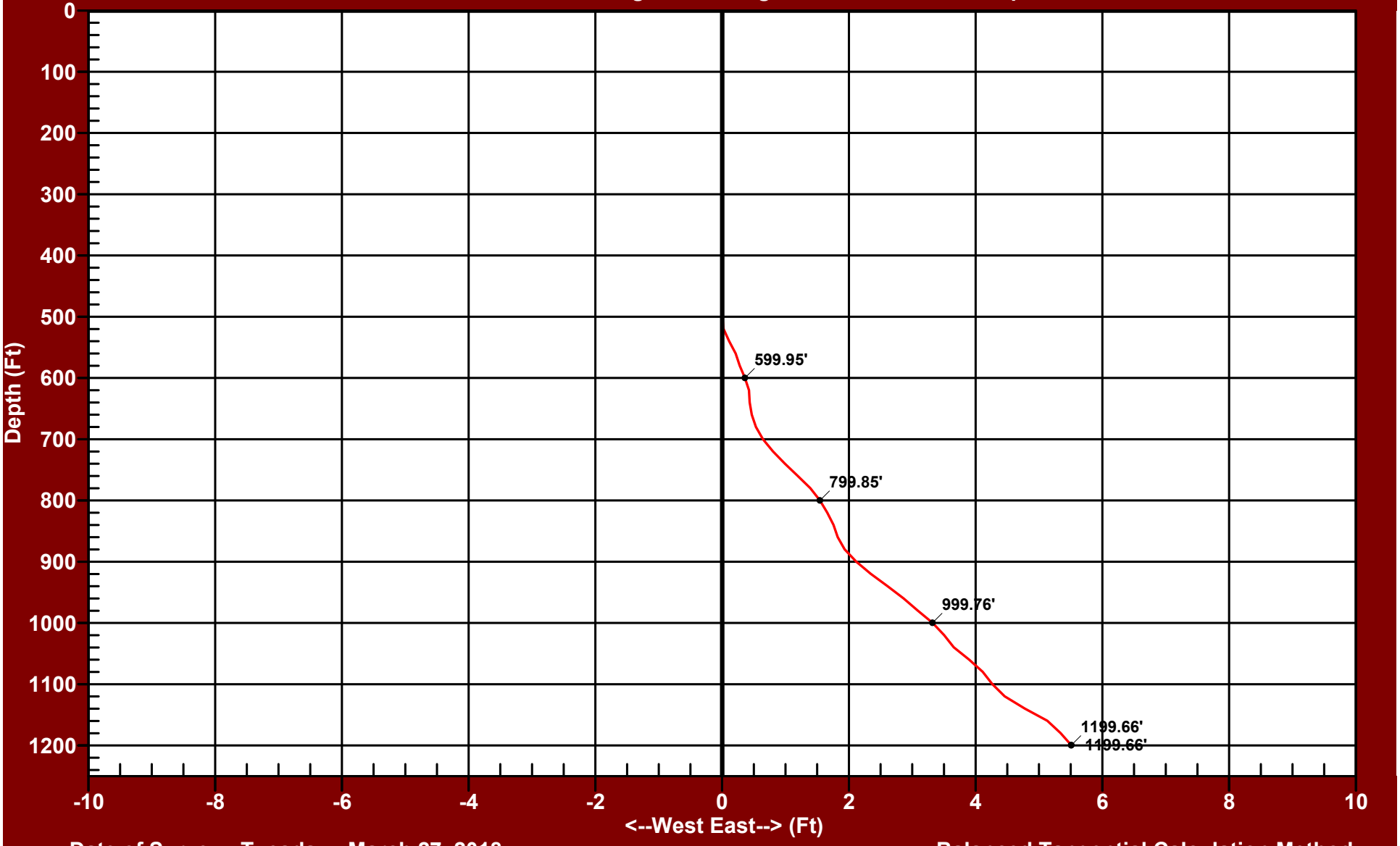
Date of Survey: Tuesday - March 27, 2018 **Balanced Tangential Calculation Method**

Southwest Exploration Services, LLC (480) 926-4558

EASTING RECTANGULAR VIEW - R-06

FLORENCE COPPER

Drift Distance = 6.43 Feet Drift Bearing = 121.1 Degrees True Vertical Depth = 1199.66 Feet



Date of Survey: Tuesday - March 27, 2018

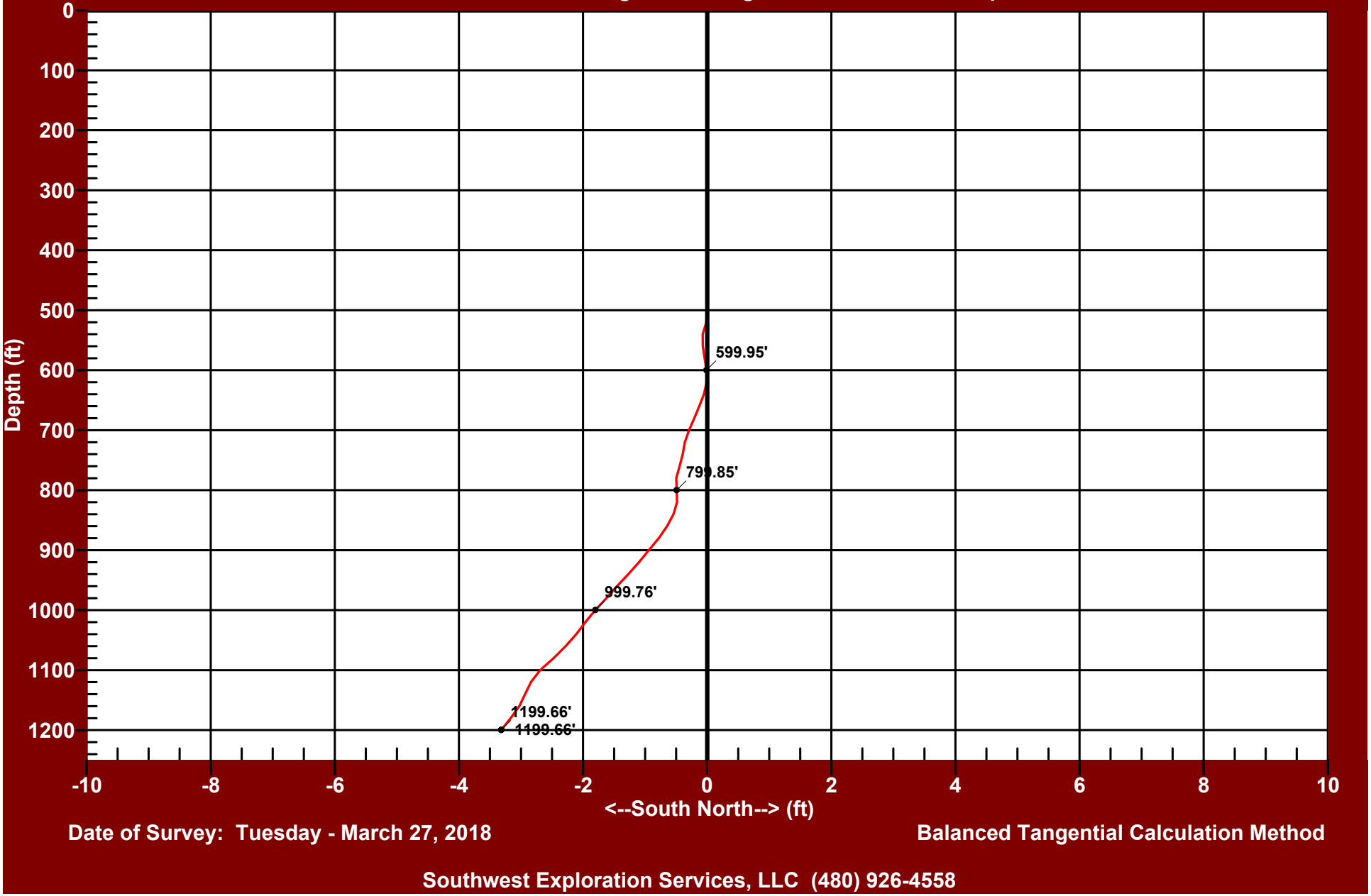
Balanced Tangential Calculation Method

Southwest Exploration Services, LLC (480) 926-4558

NORTHING RECTANGULAR VIEW - R-06

FLORENCE COPPER

Drift Distance = 6.43 Feet Drift Bearing = 121.1 Degrees True Vertical Depth = 1199.66 Feet



Date of Survey: Tuesday - March 27, 2018

Balanced Tangential Calculation Method

Southwest Exploration Services, LLC (480) 926-4558

Southwest Exploration Services, LLC

borehole geophysics & video services

COMPANY	FLORENCE COPPER		
WELL ID	R-06		
FIELD	FLORENCE COPPER		
COUNTY	PINAL	STATE	ARIZONA
LOCATION	SEC TWP RGE	OTHER SERVICES	SONIC 4 PI DENSITY DUAL DENSITY
PERMANENT DATUM	ELEVATION	K.B.	
LOG MEAS. FROM	GROUND LEVEL ABOVE PERM. DATUM	D.F.	
DRILLING MEAS. FROM	GROUND LEVEL	G.L.	

TYPE OF LOGS: GAMMA - CALIPER
MORE: TEMP. / FLUID RES.

DATE	4-19-18	TYPE FLUID IN HOLE	FORMATION WATER
RUN No	1	MUD WEIGHT	N/A
TYPE LOG	GAMMA - CALIPER - TFR	VISCOSITY	N/A
DEPTH-DRILLER	1200 FT.	LEVEL	~ 240 FT.
DEPTH-LOGGER	659 FT.	MAX. REC. TEMP.	25.86 DEG. C
BTM LOGGED INTERVAL	659 FT.	IMAGE ORIENTED TO:	N/A
TOP LOGGED INTERVAL	SURFACE	SAMPLE INTERVAL	0.2 FT.
DRILLER / RIG#	HYDRO RESOURCES	LOGGING TRUCK	TRUCK #900
RECORDED BY / Logging Eng.	A. OLSON	TOOL STRING/SN	MSI COMBO TOOL SN 4183
WITNESSED BY	COLLIN - H&A	LOG TIME:ON SITE/OFF SITE	7:30 A.M.

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	WGT.	FROM	TO
1	?	SURFACE	40 FT.	14 IN.	STEEL	SURFACE	500 FT.
2	20 IN.	40 FT.	500 FT.	5 IN.	FG	SURFACE	500 FT.
3	12 1/4 IN.	500 FT.	TOTAL DEPTH	5 IN.	PVC	500 FT.	TOTAL DEPTH

COMMENTS:

.

Tool Summary:

Date	4-19-18	**Date**	4-19-18	**Date**	4-19-18
Run No.	1	**Run No.**	2	**Run No.**	3
Tool Model	MSI COMBO TOOL	**Tool Model**	ALT 4 RX SONIC	**Tool Model**	COMPROBE 4 PI
Tool SN	4183	**Tool SN**	4572	**Tool SN**	6009
From	SURFACE	**From**	200 FT.	**From**	SURFACE
To	659 FT.	**To**	595 FT.	**To**	595 FT.
Recorded By	A. OLSON	**Recorded By**	A. OLSON	**Recorded By**	A. OLSON
Truck No	900	**Truck No**	900	**Truck No**	900
Operation Check	4-18-18	**Operation Check**	4-18-18	**Operation Check**	4-18-18
Calibration Check	4-18-18	**Calibration Check**	N/A	**Calibration Check**	N/A
Time Logged	9:05 A.M.	**Time Logged**	9:45 A.M.	**Time Logged**	10:25 A.M.

Date	4-19-18	**Date**		**Date**	
Run No.	4	**Run No.**	5	**Run No.**	6
Tool Model	ALT QL DENSITY	**Tool Model**		**Tool Model**	
Tool SN	6187	**Tool SN**		**Tool SN**	
From	SURFACE	**From**		**From**	
To	595 FT.	**To**		**To**	
Recorded By	A. OLSON	**Recorded By**		**Recorded By**	
Truck No	900	**Truck No**		**Truck No**	
Operation Check	4-18-18	**Operation Check**		**Operation Check**	
Calibration Check	N/A	**Calibration Check**		**Calibration Check**	
Time Logged	10:55 A.M.	**Time Logged**		**Time Logged**	

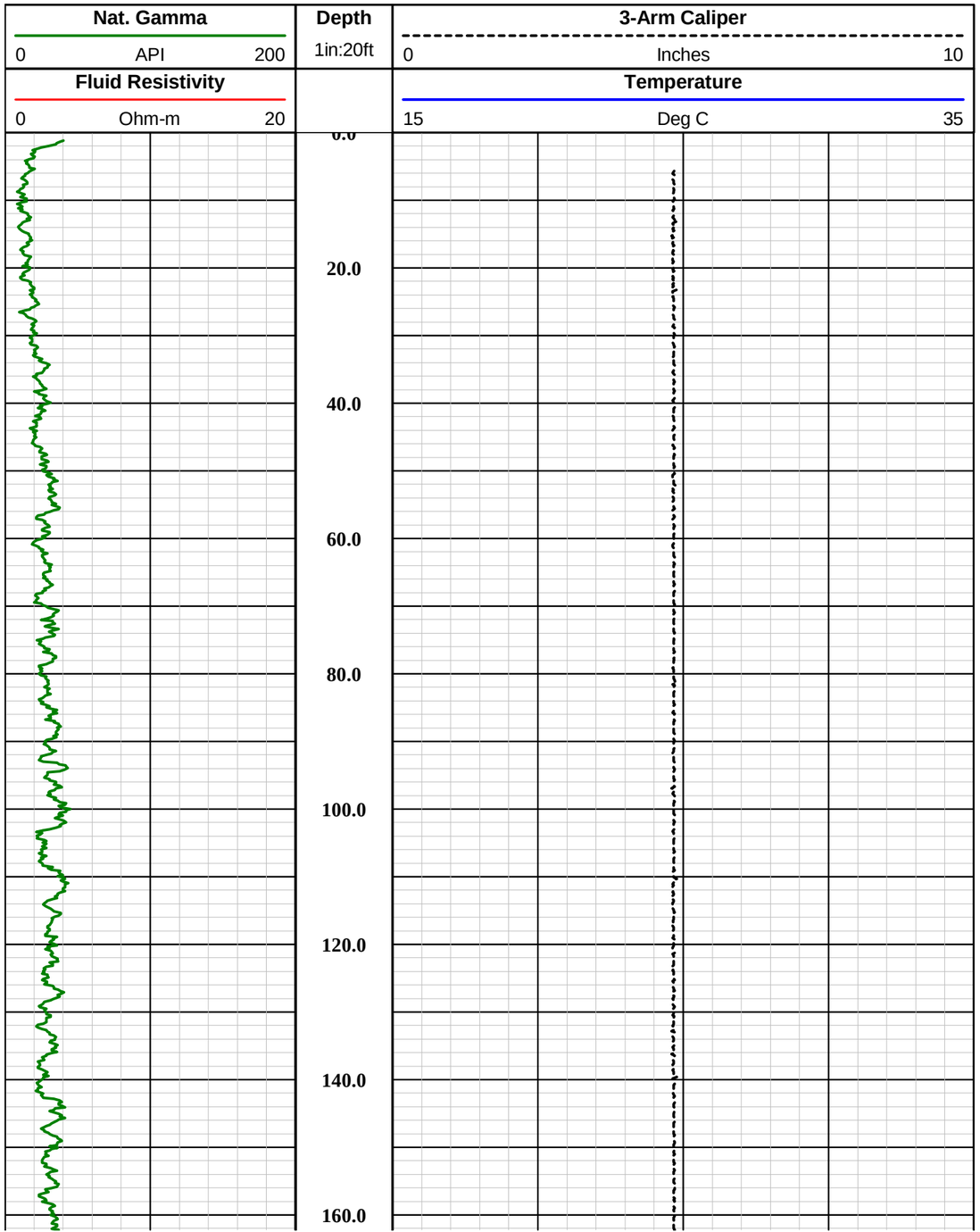
Additional Comments:

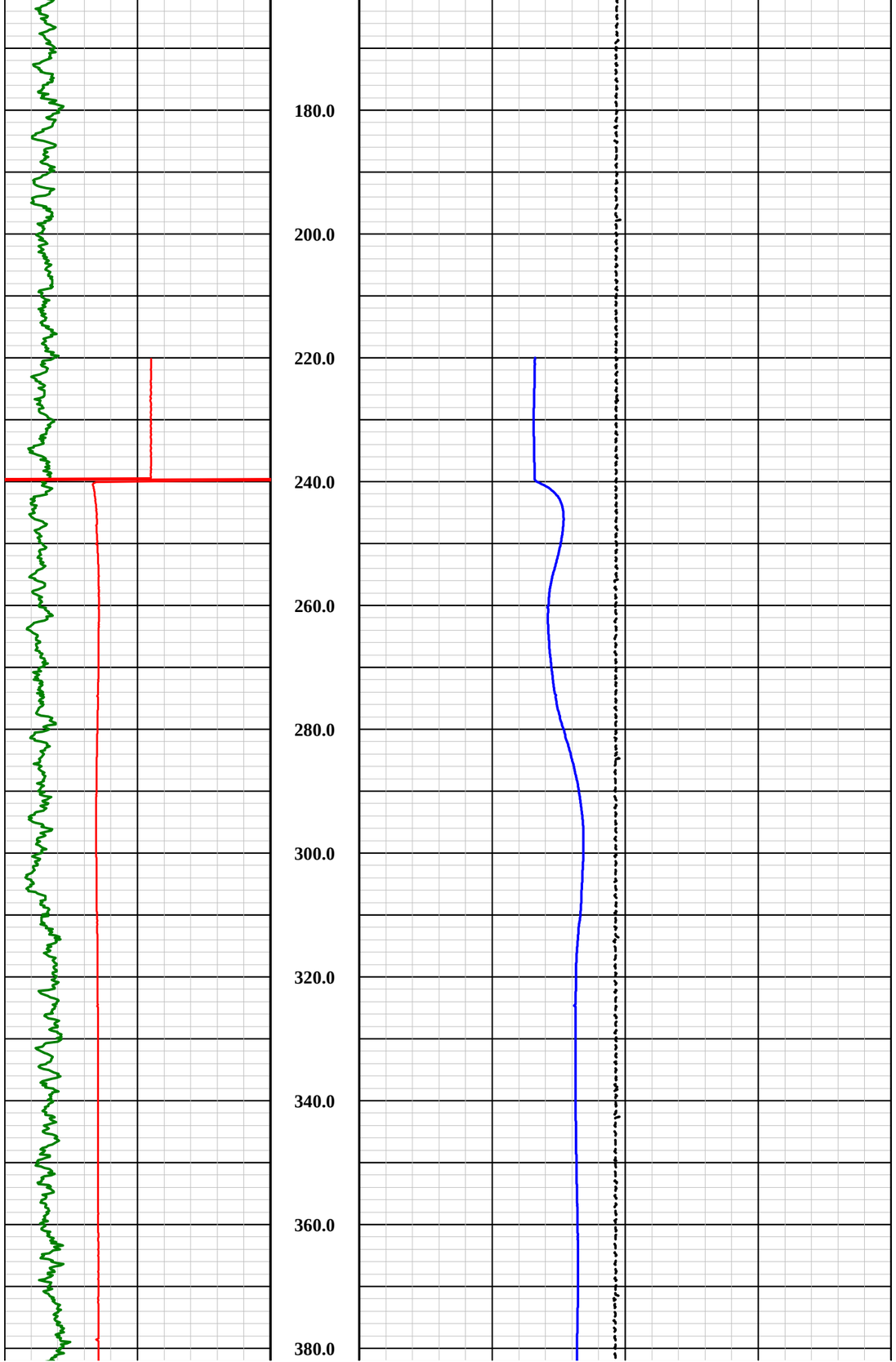
Caliper Arms Used: 9 IN. **Calibration Points:** 4 IN. & 12 IN.

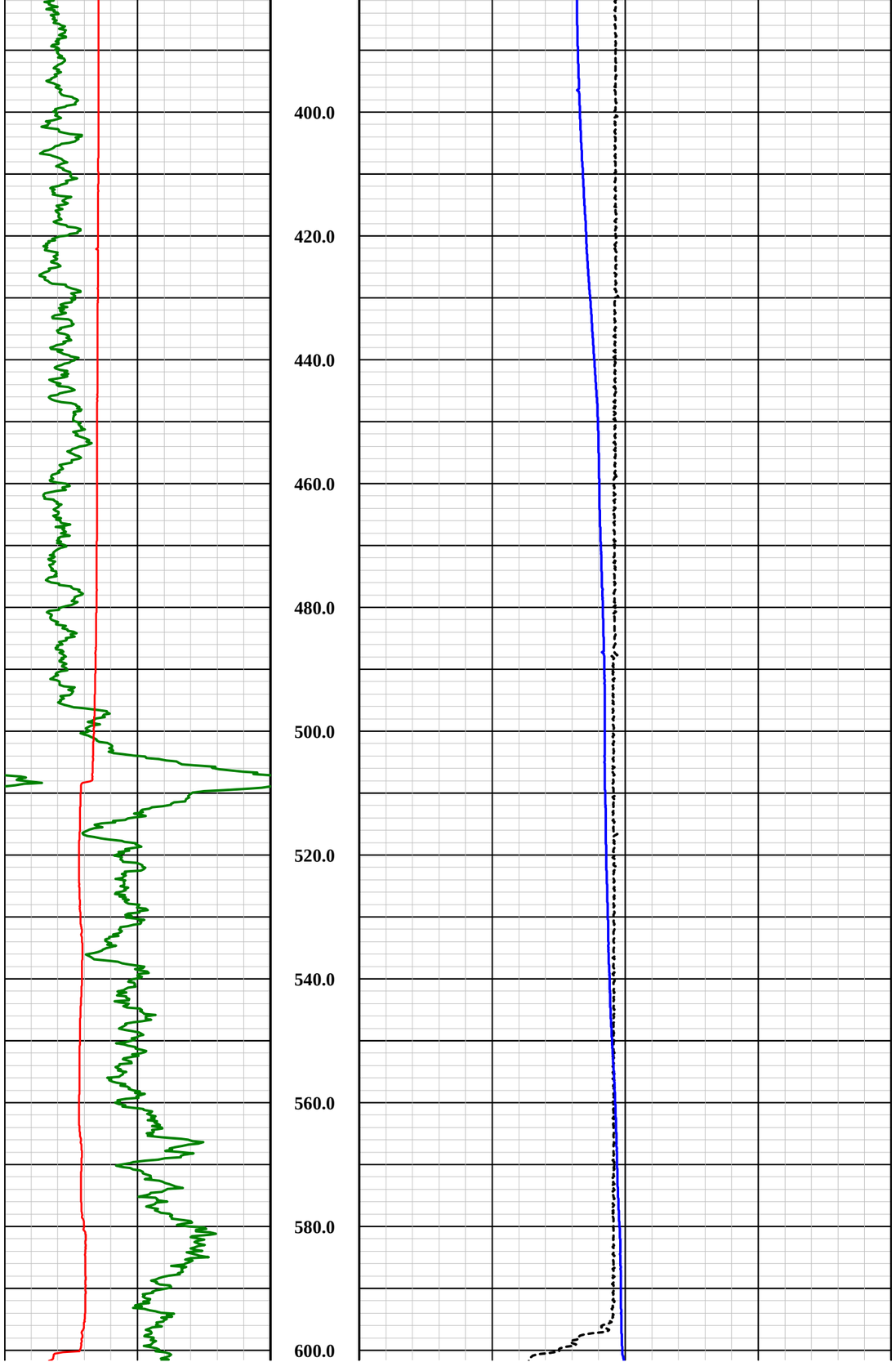
E-Log Calibration Range: N/A **Calibration Points:** N/A

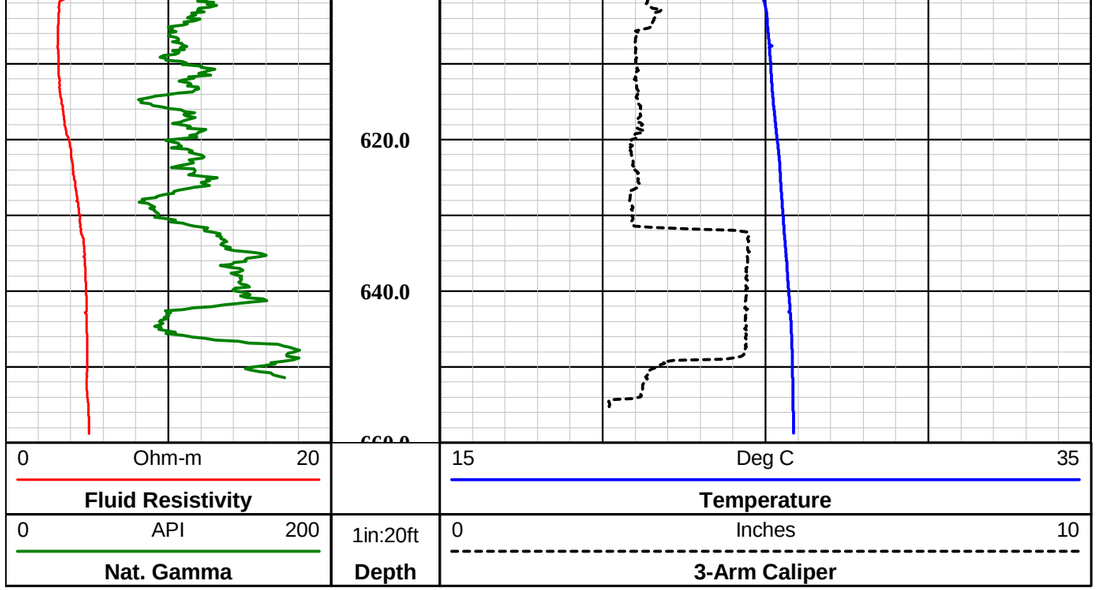
Disclaimer:

All interpretations of log data are opinions based on inferences from electrical or other measurements. We do not guarantee the accuracy or correctness of any interpretations or recommendations and shall not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our employees or agents. These interpretations are also subject to our general terms and conditions set out in our current Service Invoice.




180.0
200.0
220.0
240.0
260.0
280.0
300.0
320.0
340.0
360.0
380.0


400.0
420.0
440.0
460.0
480.0
500.0
520.0
540.0
560.0
580.0
600.0



MSI Gamma-Caliper-Temperature-Fluid Resistivity

Probe Top = Depth Ref.

Single Conductor MSI Probe Top

Probe Length = 2.59 m or 8.5 ft
Probe Weight = 6.80 kg or 15.0 lbs

Natural Gamma and Caliper can only be collected logging up hole.

Fluid Temperature/Resistivity can only be collected logging down hole.

Temperature Rating: 70 Deg C (158 Deg F)
Presure Rating: 200 bar (2900 psi)

Natural Gamma Ray = 0.76 m (29.75 in)

NOTE: Lengths on a particular tool may vary from those listed on this document due to probe sizes and styles utilized

3-Arm Caliper = 1.44 m (56.75 in)

Distance from tool top: 2.20 m (86.5 in)

Available Arm Sizes: 3", 9", and 15"

TFR (Temperature/Fluid Resistivity) = 0.39 m (15.5 in)

1.375" or 34.9 mm Diameter

Southwest Exploration Services, LLC
borehole geophysics & video services

Company	FLORENCE COPPER
Well	R-06
Field	FLORENCE COPPER
County	PINAL
State	ARIZONA

Final **GCT Summary**

APPENDIX F

Cement Bond Log Summary

WELL R-06

Geophysical Log Summary

COMPANY:	FLORENCE COPPER COMPANY	Logging Engineer:	VARIOUS
FIELD:	FLORENCE COPPER SITE	Date Logged:	VARIOUS
WELL ID:	R-06	Processed By:	K.M / B.C.
COUNTY:	PINAL STATE: ARIZONA	Date Processed:	09-08-18

Southwest Exploration Services, LLC
borehole geophysics & video services

HALEY ALDRICH

R-06 Sonic CBL with Density Summary

Depth
1in:20ft

Nat. Gamma — Cased 11-27-17
0 API 200

3-Arm Caliper — Cased 11-27-17
0 Inches 20

Comp Density — Cased 4-19-18
-1 g/cc 3

Compensation — Cased 4-19-18
-3 g/cc 1

RX1 - VDL (60mm) — Cased 11-27-17
100 uSec 1000

RX1 - TT (60mm) — Cased 11-27-17
100 uSec 1000

Bond Index — Cased 11-27-17
0 % 100

RX1 - VDL — Cased 4-19-18
100 uSec 1020

RX1 - TT — Cased 4-19-18
100 uSec 1020

RX4 - VDL — Cased 4-19-18
100 uSec 1020

RX4 - TT — Cased 4-19-18
100 uSec 1020

Velocity Analysis — Cased 4-19-18
40 us/ft 220

P-Wave Slow — Cased 4-19-18
40 us/ft 220

Steel
40 us/ft 220

FRP
40 us/ft 220

PVC
40 us/ft 220

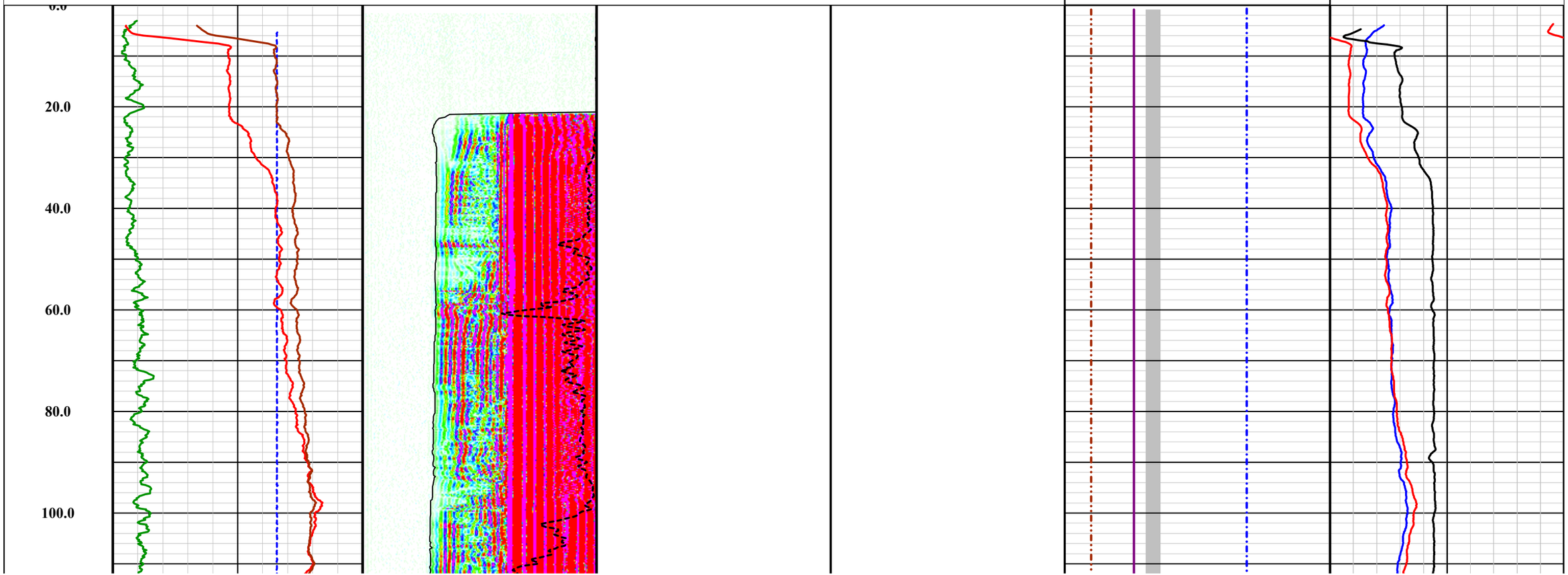
Cement

Near Density — Cased 4-19-18
1 g/cc 4

Far Density — Cased 4-19-18
1 g/cc 4

4 Pi Density (Dry) — Cased 4-19-18
2000 CPS 0

4 Pi Density (Wet) — Cased 4-19-18
600 CPS 0



120.0

140.0

160.0

180.0

200.0

220.0

240.0

260.0

280.0

300.0

320.0

340.0

360.0

380.0

400.0

420.0

440.0

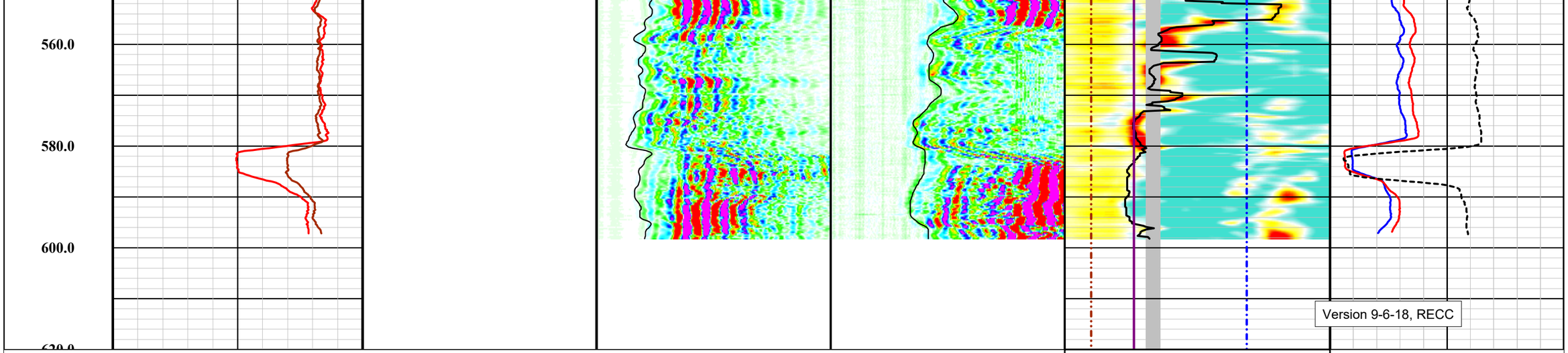
460.0

480.0

500.0

520.0

540.0



	-3 g/cc 1 Cased 4-19-18 **Compensation**				Cement 40 us/ft 220 **PVC** 40 us/ft 220 **FRP** 40 us/ft 220 **Steel**	600 CPS 0 Cased 4-19-18 **4 Pi Density (Wet)**
	-1 g/cc 3 Cased 4-19-18 **Comp Density**	0 % 100 Cased 11-27-17 **Bond Index**				2000 CPS 0 Cased 4-19-18 **4 Pi Density (Dry)**
	0 Inches 20 Cased 11-27-17 **3-Arm Caliper**	100 uSec 1000 Cased 11-27-17 **RX1 - TT (60mm)**	100 uSec 1020 Cased 4-19-18 **RX1 - TT**	100 uSec 1020 Cased 4-19-18 **RX4 - TT**	40 us/ft 220 Cased 4-19-18 **P-Wave Slow**	1 g/cc 4 Cased 4-19-18 **Far Density**
	0 API 200 Cased 11-27-17 **Nat. Gamma**	100 uSec 1000 Cased 11-27-17 **RX1 - VDL (60mm)**	100 uSec 1020 Cased 4-19-18 **RX1 - VDL**	100 uSec 1020 Cased 4-19-18 **RX4 - VDL**	40 us/ft 220 Cased 4-19-18 **Velocity Analysis**	1 g/cc 4 Cased 4-19-18 **Near Density**
1in:20ft **Depth**	**R-06 Sonic CBL with Density Summary**					

APPENDIX G

SAPT Documentation

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
STANDARD ANNULAR PRESSURE TEST

Operator FLORENCE COPPER, INC
Address 1575 W. HUNT HWY
FLORENCE, AZ 85132
Well Name R-06

State Permit No. P-101704
USEPA Permit No. R9UIC-AZ3-FY11-1
Date of Test 4/17/2018
Well Type ENV - RECOVERY - Class III

LOCATION INFORMATION SE Quarter of the NW Quarter of the SW Quarter of Section 28 ; Range 9E ; Township 4S ; County PINAL ;

Company Representative IAN REAM ; Field Inspector LAUREN CANDREVA ;

Type of Pressure Gauge Pressure transducer with data logger inch face; 300 psi full scale; 0.001 psi increments;

New Gauge? Yes ☑ No ☐ If no, date of calibration ____ Calibration certification submitted? Yes ☐ No ☑

TEST RESULTS
Readings must be taken at least every 10 minutes for a minimum of 30 minutes for Class II, III and V wells and 60 minutes for Class I wells.
For Class II wells, annulus pressue should be at least 300 psig. For Class I wells, annulus pressure should be the greater of 300 psig or 100 psi above maximum permitted injection pressure.
Original chart recordings must be submitted with this form.

5-year or annual test on time? Yes ☐ No ☑
2-year test for TA'd wells on time? Yes ☐ No ☑
After rework? Yes ☐ No ☑
Newly permitted well? Yes ☑ No ☐

Time	Pressure (in psig) Annulus	Tubing
17:07	155.74	same
17:17	156.77	same
17:27	157.75	same
17:37	158.74	same

Casing size 5" - NOMINAL
Tubing size 2"
Packer type INFLATABLE PACKER
Packer set @ 3.63(top), 502.38(bottom)
Top of Permitted Injection Zone 420 feet
Is packer 100 ft or less above top of Injection Zone ? Yes ☑ No ☐
If not, please submit a justification.
Fluid return (gal.) 0.74
Comments: Three tests were conducted to confirm results, data from all tests included in attached table and chart

Test Pressures: Max. Allowable Pressure Change: Initial test pressure x 0.05 7.79 psi
Test Period Pressure change 3.0 psi

Test Passed ☑ Test Failed ☐

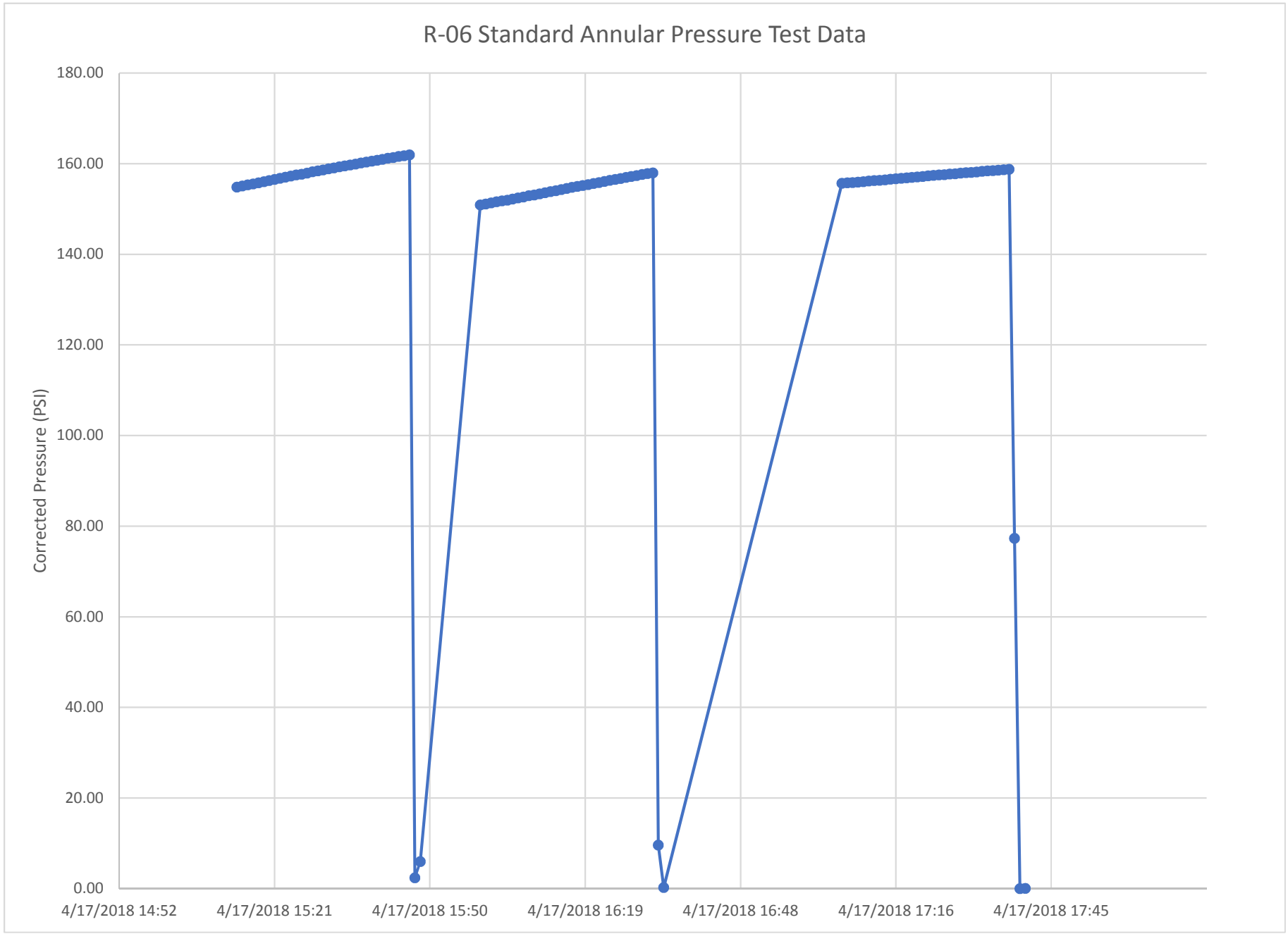
If failed test, well must be shut in, no injection can occur, and USEPA must be contacted within 24 hours. Corrective action needs to occur, the well retested, and written authorization received before injection can recommence.

I certify under penalty of law that this document and all attachments are, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (See 40 CFR 144.32(d))

Ian Ream
Printed Name of Company Representative

Signature of Company Representative

9-12-2018
Date


R-06 Standard Annular Pressure Test Data
Corrected Pressure (PSI)
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
4/17/2018 14:52
4/17/2018 15:21
4/17/2018 15:50
4/17/2018 16:19
4/17/2018 16:48
4/17/2018 17:16
4/17/2018 17:45

Well R-06 SAPT Data		
Tranducer Serial Number:	519257	
Tranducer Model:	Level TROLL 400 non-vented 300 psi	
Date and Time	Pressure (PSI)	Corrected Presssure (PSI) (Sensor pressure - barometric pressure)
4/17/2018 15:14	168.498	154.84
4/17/2018 15:15	168.722	155.06
4/17/2018 15:16	168.949	155.29
4/17/2018 15:17	169.195	155.54
4/17/2018 15:18	169.418	155.76
4/17/2018 15:19	169.686	156.03
4/17/2018 15:20	169.915	156.26
4/17/2018 15:21	170.15	156.49
4/17/2018 15:22	170.396	156.74
4/17/2018 15:23	170.665	157.01
4/17/2018 15:24	170.894	157.24
4/17/2018 15:25	171.139	157.48
4/17/2018 15:26	171.325	157.67
4/17/2018 15:27	171.578	157.92
4/17/2018 15:28	171.847	158.19
4/17/2018 15:29	172.037	158.38
4/17/2018 15:30	172.275	158.62
4/17/2018 15:31	172.501	158.84
4/17/2018 15:32	172.722	159.06
4/17/2018 15:33	172.949	159.29
4/17/2018 15:34	173.149	159.49
4/17/2018 15:35	173.374	159.72
4/17/2018 15:36	173.565	159.91
4/17/2018 15:37	173.785	160.13
4/17/2018 15:38	173.974	160.32
4/17/2018 15:39	174.213	160.56
4/17/2018 15:40	174.415	160.76
4/17/2018 15:41	174.599	160.94
4/17/2018 15:42	174.823	161.17
4/17/2018 15:43	174.998	161.34
4/17/2018 15:44	175.223	161.57
4/17/2018 15:45	175.403	161.75
4/17/2018 15:46	175.575	161.92
4/17/2018 15:47	16.055	2.40
4/17/2018 15:48	19.606	5.95
4/17/2018 15:59	164.531	150.87
4/17/2018 16:00	164.729	151.07
4/17/2018 16:01	164.971	151.31
4/17/2018 16:02	165.242	151.58
4/17/2018 16:03	165.43	151.77
4/17/2018 16:04	165.605	151.95

Well R-06 SAPT Data		
Tranducer Serial Number:	519257	
Tranducer Model:	Level TROLL 400 non-vented 300 psi	
Date and Time	Pressure (PSI)	Corrected Presssure (PSI) (Sensor pressure - barometric pressure)
4/17/2018 16:05	165.84	152.18
4/17/2018 16:06	166.078	152.42
4/17/2018 16:07	166.302	152.64
4/17/2018 16:08	166.573	152.92
4/17/2018 16:09	166.754	153.10
4/17/2018 16:10	166.999	153.34
4/17/2018 16:11	167.217	153.56
4/17/2018 16:12	167.463	153.81
4/17/2018 16:13	167.668	154.01
4/17/2018 16:14	167.929	154.27
4/17/2018 16:15	168.156	154.50
4/17/2018 16:16	168.402	154.74
4/17/2018 16:17	168.6	154.94
4/17/2018 16:18	168.815	155.16
4/17/2018 16:19	169.039	155.38
4/17/2018 16:20	169.29	155.63
4/17/2018 16:21	169.473	155.82
4/17/2018 16:22	169.723	156.07
4/17/2018 16:23	169.965	156.31
4/17/2018 16:24	170.15	156.49
4/17/2018 16:25	170.361	156.70
4/17/2018 16:26	170.603	156.95
4/17/2018 16:27	170.821	157.16
4/17/2018 16:28	171.027	157.37
4/17/2018 16:29	171.237	157.58
4/17/2018 16:30	171.451	157.79
4/17/2018 16:31	171.623	157.97
4/17/2018 16:32	23.281	9.62
4/17/2018 16:33	13.908	0.25
4/17/2018 17:06	169.314	155.66
4/17/2018 17:07	169.4	155.74
4/17/2018 17:08	169.489	155.83
4/17/2018 17:09	169.584	155.93
4/17/2018 17:10	169.692	156.03
4/17/2018 17:11	169.808	156.15
4/17/2018 17:12	169.892	156.23
4/17/2018 17:13	169.978	156.32
4/17/2018 17:14	170.075	156.42
4/17/2018 17:15	170.211	156.55
4/17/2018 17:16	170.318	156.66
4/17/2018 17:17	170.425	156.77

Well R-06 SAPT Data		
Tranducer Serial Number:	519257	
Tranducer Model:	Level TROLL 400 non-vented 300 psi	
Date and Time	Pressure (PSI)	Corrected Presssure (PSI) (Sensor pressure - barometric pressure)
4/17/2018 17:18	170.525	156.87
4/17/2018 17:19	170.605	156.95
4/17/2018 17:20	170.718	157.06
4/17/2018 17:21	170.82	157.16
4/17/2018 17:22	170.943	157.29
4/17/2018 17:23	171.04	157.38
4/17/2018 17:24	171.145	157.49
4/17/2018 17:25	171.227	157.57
4/17/2018 17:26	171.359	157.70
4/17/2018 17:27	171.411	157.75
4/17/2018 17:28	171.549	157.89
4/17/2018 17:29	171.642	157.98
4/17/2018 17:30	171.722	158.06
4/17/2018 17:31	171.816	158.16
4/17/2018 17:32	171.949	158.29
4/17/2018 17:33	172.033	158.38
4/17/2018 17:34	172.112	158.45
4/17/2018 17:35	172.219	158.56
4/17/2018 17:36	172.328	158.67
4/17/2018 17:37	172.396	158.74
4/17/2018 17:38	90.943	77.29
4/17/2018 17:39	13.658	0.00
4/17/2018 17:40	13.691	0.03

APPENDIX H

Well Development Field Forms

DEVELOPMENT
FIELD DATA LOG

Project Name: EC1 PTF	Project No.: 129687-007
Well No.: R-06	Date: 4/11/2018
Location: Plumas AZ	Measuring Point:
Total Depth of Well (ft bls):	Screen Interval (ft bls):
Pump Type/Setting (ft bls):	Activity: Q. Airlift
How Q Measured:	H&A Personnel: M. Cote

Time	Discharge (gpm)	Pumping ~~Water~~ Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ppm)	pH	Sp. Cond. (µmhos/cm)	Temp. °C	Turbidity NTU	Comments
1472									
1480									
[illegible]									
1500					9.46	1514	25.62		
1600	AR LIFT ON			@ 600 ft					
1630	~10								LIFTING @ 609 ft
1900	——	AIRLIFT		OFF	——	——	——	——	609 ft
7820	AIRLIFT ON								
0842	~10	~610	—	3	12.18	2699	24.48	465	
0937	~10	~625	—		11.90	2418	25.19	>1000	
1205	~10			0.1	11.80	2010	25.31	OR	muddy
1224	~10	~635		1.0	11.37	1593	25.29	308	very cloudy
1340	~10	~635							
1446	~10	633		<0.1	9.92	1343	25.05	OR	SAA
1554	~10	~640		3.0	12.13	3318	24.97	OR	SAA
1320									Airlift on
1420	~8	629		5.6	11.83	12605	21.78	OR	Brown cloudy
1510	~8	635		2.2	7.24	1301	23.40	209	cloudy
1550	~10	631		1.0	11.04	13216	22.81	OR	Brown cloudy
1610									stop airlift
1645	~10	632						OR	start airlift
1710	~10	632		0.3	10.95	12.77	22.74	OR	brown cloudy
1750	~10	633		0.1	12.93	9.55	22.98	OR	brown/cloudy
						2453			
4-14-18 0800	~10			~0.1	12.71	[illegible]	23.21	OR.	brown, cloudy drill mud
0850	~10	667		0.1	12.20	2856	23.72	OR	SAA.
0950	~10	~670		0.4	10.62	1351	23.82	OR.	light brown, cloudy

— clogged. ——

Comments:

HALEY ALDRICH

Cascade

DEVELOPMENT
FIELD DATA LOG

Project Name: FCI - ATF	Project No.: ~~125~~ 129687-007
Well No.: R-06	Date: 4-14-18
Location: FLORENCE AZ	Measuring Point: Discharge hose
Total Depth of Well (ft bls): 1200	Screen Interval (ft bls): 500-1200
Pump Type/Setting (ft bls):	Activity: AIRLIFT
How Q Measured: cone/stopwatch	H&A Personnel: KF/BL

Time	Discharge (gpm)	Pumping Water Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ppm)	pH	Sp. Cond. (µmhos/cm)	Temp. °C	Turbidity NTU	Comments
1630		670							Resume airlift
1635		670	-		12.47	3287	23.28	OR	Brown, cloudy, drill mud
1715		670	-	0	11.76	1676	24.96	OR.	Light brown, cloudy
1750		~670	-	0	10.08	1379	24.24	OR.	Sm.
1800									Stop airlift.
4/15/18 0740		670	Start	airlift					
0815		671	—	0	9.86	1494	24.19	OR	brown, muddy
0915		671	-	0	8.44	1535	24.73	253	light brown, cloudy
1125	—	Airlift	off	—					

Comments:

HALEY ALDRICH

DEVELOPMENT
FIELD DATA LOG

Project Name: FCI PTF	Project No.: 129687-007
Well No.: R-06	Date: 5-8-18
Location:	Measuring Point:
Total Depth of Well (ft bls): 1200	Screen Interval (ft bls): 570 - 1200
Pump Type/Setting (ft bls):	Activity: AIRLIFT
How Q Measured: Bucket + Stopwatch (Air Pipe)	H&A Personnel: K. AHRENS / C. GUSTI

Time	Discharge (gpm)	Pumping ~~Water~~ Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ppm)	pH	Sp. Cond. (µmhos/cm)	Temp. °C	Turbidity NTU	Comments
20:35	5-10	~500		0	7.86	0.8	24.9	189	pipe @ 1010'
20:40		~500		0	9.10	0.7	24.7	422	fines in cone top
20:45				0	8.97	0.7	24.5	OR	
21:00				10	9.88	0.6	25	OR	
21:15				1.5	9.45	0.6	20.8	662	
21:30				1.0	9.28	0.5	21.7	285	
21:45				0	9.87	0.5	22.1	147	
22:00				0.75	9.60	0.5	19.6	181	
22:15				0.5	9.68	0.4	21.9	154	
22:30				0	9.68	0.4	20.0	117	
22:45	5-10	~500		6.5	8.71	0.4	17.4	95.7	
01:15	5-10	440		0	8.62	0.3	19.3	145	pipe @ 741'
01:30				0.5	8.68	0.3	18.9	OR	
01:45				0.5	8.38	0.3	19.4	182	
02:00				0	8.47	0.3	20.0	107	
02:30	5-10	440		0	8.36	0.0	20.7	94.8	
04:30		400		0	7.75	0.0	19.0	107	pipe @ 510'
04:45				0	8.09	0.0	17.5	282	
05:00				0	7.65	0.1	18.7	88.7	
05:15				0	7.42	0.1	23.3	51.7	
05:30				0	7.40	0.1	24.7	35.1	
1400		START		AIRLIFT	FROM	1130'			
1445	~15	EJECTOR		6	7.40	1649	29.7	256	MAKING FILTER PACK + CHOKE SAND
1515	~15	1130		1	8.14	1658	28.9	259	
1535	~15	1130		1	8.32	1677	27.8	183	
1625	~15	1130		0-5	8.45	1546	29.0	159	
1725	~15	1130		0-5	8.53	1559	28.3	141	
1740		AIR LIFT OFF							

Comments:

HALEY ALDRICH

DEVELOPMENT
FIELD DATA LOG

Project Name: ECI PTF	Project No.: 129687-007
Well No.: R-06	Date: 5-10-18
Location:	Measuring Point:
Total Depth of Well (ft bls): 1200	Screen Interval (ft bls):
Pump Type/Setting (ft bls):	Activity: AIR LIFT
How Q Measured: Bucket & Stop watch	H&A Personnel: K. AHRENS

Time	Discharge (gpm)	Pumping ~~Water~~ Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ppm)	pH	Sp. Cond. (µmhos/cm)	Temp. °C	Turbidity NTU	Comments
21:30		START	AIRLIFT	FROM	~1100				
21:35	~15	420'		0	5.17	1.0	24.6	190	
21:45	~15			2	4.77	1.0	20.7	Low Sig.	brown water, cloudy
22:00				2	4.14	0.9	26.2	LS	"
22:15				1	4.21	0.9	23.3	LS	
22:45				2	5.18	0.7	24.5	OR	cloudy
23:15				1	5.37	0.6	22.5	579	
23:45				0	5.42	0.6	20.4	451	
5-11-18 00:15				0.5	5.44	0.5	21.3	72.8	
00:45				0	5.46	0.5	23.3	304	red/pink tint
01:15				0	5.59	0.5	22.9	157	
01:30				0	5.53	0.5	22.5	156	
02:00	~15	420		0	5.55	0.4	20.8	155	
02:05			AIR LIFT	OFF					
0340			START	AIRLIFT	FROM	~750'			
0345	~15	420		10	6.04	0.3	24.7	LS	very dark brown
0350				1	5.87	0.3	18.7	485	slightly cloudy
0355				0	5.95	0.3	18.0	410	"
0415				0	5.58	0.3	17.5	158	
0445				0	5.70	0.2	20.0	174	
0515				0	5.83	0.2	18.2	127	
0530				0	6.00	0.1	18.1	131	
0535			AIR	LIFT	OFF				
0835			AIR LIFT ON @ 52 GPM						
0840	~15			0	5.48	13605	26.0	OR	PURPLE/BROWN
910	~15			0	5.41	4134	25.7	OR	BROWN/MURKY
930	~15			0	5.50	36026	26.2	546	BROWN/MURKY
1000	~15			0	5.52	2721	26.5	142	CLOUDY

Comments:

HALEY ALDRICH

DEVELOPMENT
FIELD DATA LOG

Project Name: FCI PTM	Project No.: 124667-007
Well No.: R-606	Date: 5-11-18
Location:	Measuring Point: TOC
Total Depth of Well (ft bls): 1200 ?	Screen Interval (ft bls): 520-1200
Pump Type/Setting (ft bls): GRUNDFOS / 520'	Activity: DEVELOPMENT
How Q Measured: TOTALIZER (TOTAL GAL)	H&A Personnel: C. OLSEN / R. CERDEN / K. AHRENS

Time	Discharge (gpm)	Pumping Water Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ppm)	pH	Sp. Cond. (µmhos/cm)	Temp. °F	NTU	Comments
			AIR LIFT	NO	R. 520 FT				
1030	~15			6	5.47	2533	27.2	117	CLOUDY, YELLOW
1050	~15			0	5.87	2417	27.5	91.1	" "
1120	~15			0	6.02	2280	28.3	88.7	" "
1150	~15			0	5.72	2220	28.7	87.4	" "
1230			AIR LIFT	@ FT					
2030		BEGIN		PUMPING					
2045	61.2	243	205292	2	5.53	2471	27.5	644	dk. gray
2115	61.05	275.4	2054590	1.75	6.36	1872	27.9	290	
2145	60.93	276.2	2056715	0.3	6.70	1715	27.4	87.6	
2215	60.85	277.	2058592	0.2	6.89	1620	27.1	60.1	
2245	60.70	277.6	2060428	0.2	6.98	1588	26.8	32.8	
2315	60.78	278	2062467	0.2	7.10	1542	26.4	15.5	
2345	60.64	278.4	2064206	0.1	7.14	1530	25.9	12.6	
0015	60.60	278.6	2065920	0.1	7.21	1508	26.2	11.5	
0045	60.55	278.8	2067567	0.1	7.24	1497	25.5	10.6	
0115	60.60	279	2069577	0.1	7.29	1484	25.5	9.64	
0145	60.48	279.2	2071303	0.2	7.36	1474	25.4	11.1	
0215	60.41	279.3	2073140	0.1	7.35	1478	24.2	9.42	
0245	60.40	279.6	2075040	0	7.40	1470	25.0	5.92	
0315	60.35	279.7	2076805	0	7.42	1464	24.6	9.70	
0345	60.30	279.8	2078620	0.1	7.45	1460	24.4	8.29	
0430	60.33	280	2081450	0.1	7.47	1457	24.4	4.95	
0530	60.22	280.2	2084583	0.1	7.55	1445	22.8	5.50	
0630	58.46	278.6	2082915	0.1	6.95	1769	RL 24.8 269	24.8	SLIGHTLY CLOUDY
0730	59.72	278.2	2091750	0.1	7.25	1524	27.9	11.4	" "
0800	60.25	278	2093545	0.1	7.20	1554	28.3	12.9	" "
0830	59.70	277.65	2095610	0	7.33	1515	28.4	11.3	" "

Comments:

DEVELOPMENT
FIELD DATA LOG

Project Name: FCI PTF	Project No.: 129687-007
Well No.: R-06	Date: 5/12/18
Location:	Measuring Point:
Total Depth of Well (ft bls): ~1200	Screen Interval (ft bls): 520 - 1200'
Pump Type/Setting (ft bls): GRUNDFOS/520'	Activity: DEVELOPMENT
How Q Measured: TOTA (TOTAL GAL)	H&A Personnel: R. LEEPER

Time	Discharge (gpm)	Pumping Water Level (ft)	Specific Capacity (gpm/ft)	Sand Content (ppm)	pH	Sp. Cond. (µmhos/cm)	Temp. °F	Comments: NTU	Comments
0900	60.15	277.9	2097290	0.1	7.65	1436	28.7	6.36	SLIGHTLY CLOUDY
0930	59.64	277.7	2099200	0.1	7.61	1434	28.7	4.23	" "
1000	59.79	277.85	2100730	0.2	7.65	1430	28.5	4.37	" "
1030	59.10	277.35	2102510	0.1	7.71	1438	28.8	3.41	CLEAR
1100	58.78	277.25	2104350	0	7.79	1432	28.7	7.89	"
1130	59.15	277.5	2106200	0	7.79	1434	28.6	4.42	"
1200	59.10	277.5	2107750	0	7.79	1428	28.9	3.87	"
1230	59.20	277.65	2109785	0.1	7.79	1421	28.9	4.21	"
1300	59.15	277.55	2111540	0	7.80	1409	29.3	3.28	"
1330	59.15	277.65	2113310	0	7.83	1412	29.4	3.35	"
1400 PL	59.01	277.6	2115015	0	7.83	1407	29.3	3.03	"
~~1415~~ 1430			PUMPING STOPPED						
1436			RESUME PUMPING						
~~1500~~ 1450 PL	60.23	276.85	2116500	0.1	7.74	1411	29.6	24.5	SLIGHTLY CLOUDY
1510	59.42	276.9	2118160	0	7.84	1411	29.4	11.2	" "
1525	60.27	277.45	2119045	0	7.85	1420	29.1	7.72	CLEAR
1535	60.23	277.5	2119705	0.1	7.83	1409	29.9	6.93	"
1545	60.25	277.55	2120220	0.1	7.85	1426	29.1	7.55	"
1600	60.10	277.75	2121150	0	7.84	1431	29.1	34.9	SLIGHTLY CLOUDY
1605	60.15	277.75	2121540	2	7.83	1416	28.7	22.5	" "
1620	58.92	277.5	2122995	0.1	7.90	1428	28.6	14.0	" "
1650	59.41	277.5	2123975	0.1	7.88	1423	28.5	3.35	CLEAR
1705 ~~1705~~ PL	60.15	277.5	2124960	0	7.82	1427	28.2	3.14	"
1720			PUMPING STOPPED						
1725			RESUME PUMPING						
1726	59.01	277.55	2126030	0.1	7.87	1422	27.8	4.72	CLEAR
1736	60.20	276.7	2126580	0	7.87	1421	28.0	9.64	CLEAR
1746	58.96	276.65	2127217	0	7.92	1419	27.9	10.9	"
1756	58.82	276.7	2127902	0	7.95	1416	27.9	7.27	"

Comments:

REGARDING SAND CONTENT @ 1605, ASKED IF CLOSING SAMPLE VALVE COULD CAUSE SEDIMENT ACCUMULATION AT VALVE, AND GUY SAID YES, WITH VALVE CLOSED, BAV VALVE COULD CAUSE/RESULT IN SEDIMENT ACCUM, WHICH COULD EXPLAIN INCREASE IN SAND CONTENT. ADVISED TO LET FLOW BEFORE SAMPLING INTO CONES.

APPENDIX I

Well Video Log and Gyroscopic Survey Reports

Southwest Exploration Services, LLC
borehole geophysics & video services

Southwest Exploration Services, LLC
25811 S. Arizona Avenue Chandler, AZ. 85248
Phone: (480) 926-4558 Fax: (480) 926-4579 Web: www.swexp.com

Client: Florence Copper | Survey Date: May 06, 2018

Address: 1575 W. Hunt Hwy | Invoice: | Run: 1

City: Florence | State: AZ | Zip: 85132 | **Well Name:** R-06

Requested By: Florence Copper | P.O.: | **Well Owner:** Florence Copper

Copy To: | Camera: CCV Color Flip Camera - Short L.H.

Purpose: General Inspection | Zero Datum: Top of Casing

Location: | Depth: | Vehicle: 290

Field: FLORENCE COPPER | Type Perfs: Horizontal Slots

1st Csg.O.D. 5 In. | Csg Weight: | From: 0 ft. | To: 1200 ft. | 2nd Csg.O.D. | Csg Weight: | From: | To:

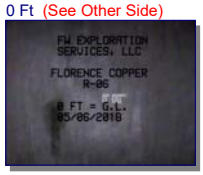
Standing Water Level: 226.1 ft. | Pumping Water Level: | Pump Depth: | O.D.Ref.: Measured | Casing Buildup: Heavy

Operator: M. Quinones | Lat.: | Long.: | Sec: | Twp: | Rge:

Other Information:

Wellbore Snapshots

0 Ft (See Other Side)



4.1 Ft (See Other Side)

225.1 Ft (See Other Side)

519.1 Ft (See Other Side)

520.2 Ft (See Other Side)

546.6 Ft (See Other Side)

579.3 Ft (See Other Side)

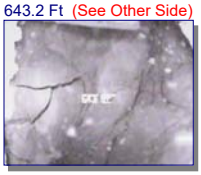
583.1 Ft (See Other Side)

611.9 Ft (See Other Side)

632 Ft (See Other Side)

643 Ft (See Other Side)

643.2 Ft (See Other Side)



True Depths: (SideScan-Feet)	WELLBORE / CASING INFORMATION
0	Start of Video Survey
4.1	Side Scan of Casing Joint
226.1	Static Water Level
519.1	Bottom of Fiber Glass Casing
520.2	Top of PVC Casing and Top of 1st Set of Perforations Completely Clogged
546.6	Side Scan of Perforations Clogged With Mud
579.3	Down Hole View of PVC Torqued and Twisted
583.1	Down Hole View of Perforations Twisted
611.9	Bottom of 1st Set of Perforations
632	Down Hole View of Blank PVC Casing
643	Side Scan of Broken PVC Casing
643.2	Side Scan of Hole in PVC Casing

Notes:

12 WELLBORE SHAPSHOTS

0 Ft (Enlargement)

4.1 Ft (Enlargement)

225.1 Ft (Enlargement)

519.1 Ft (Enlargement)

520.2 Ft (Enlargement)

546.6 Ft (Enlargement)

579.3 Ft (Enlargement)

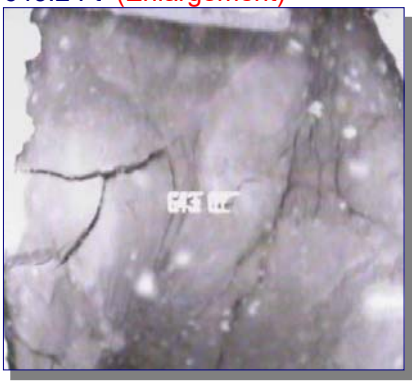
583.1 Ft (Enlargement)

611.9 Ft (Enlargement)

632 Ft (Enlargement)

643 Ft (Enlargement)

643.2 Ft (Enlargement)



Southwest Exploration Services, LLC

borehole geophysics & video services

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25811 S. Arizona Avenue Chandler, AZ. 85248

Phone: (480) 926-4558 Fax: (480) 926-4579 Web: www.swexp.com

Client: Florence Copper | Survey Date: May 06, 2018

Address: 1575 W. Hunt Hwy | Invoice: | Run: 1

City: Florence | State: AZ | Zip: 85132 | **Well Name:** R-06

Requested By: Florence Copper | P.O.: | **Well Owner:** Florence Copper

Copy To: | Camera: CCV Color Flip Camera - Short L.H.

Purpose: General Inspection | Zero Datum: Top of Casing

Location: | Depth: | Vehicle: 290

Field: FLORENCE COPPER | Type Perfs: Horizontal Slots

1st Csg.O.D. 5 In. | Csg Weight: | From: 0 ft. | To: 1200 ft. | 2nd Csg.O.D. | Csg Weight: | From: | To:

Standing Water Level: 226.1 ft. | Pumping Water Level: | Pump Depth: | O.D.Ref.: Measured | Casing Buildup: Heavy

Operator: M. Quinones | Lat.: | Long.: | Sec: | Twp: | Rge:

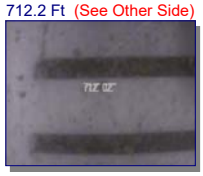
Other Information:

Wellbore Snapshots

645.1 Ft (See Other Side)

705.2 Ft (See Other Side)

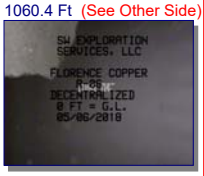
712.2 Ft (See Other Side)



714.3 Ft (See Other Side)

1141.5 Ft (See Other Side)

1060.4 Ft (See Other Side)



True Depths: (SideScan-Feet)	WELLBORE / CASING INFORMATION
645.1	Side Scan of Rubber Cable on Inside of Well
705.2	Side Scan Murky Due to Falling Debris
712.2	Side Scan of Perforations Appear Clogged
741.3	Side Scan of Perforations Appear Clogged
1,141.5	Downward Progression Stopped Due to Soft Bottom Fill Blocking Side Scan and Down View
1,060.4	End of Video Survey

Notes:

Page Number: 3

6 WELLBORE SHAPSHOTS

645.1 Ft (Enlargement)

705.2 Ft (Enlargement)

712.2 Ft (Enlargement)

714.3 Ft (Enlargement)

1141.5 Ft (Enlargement)

1060.4 Ft (Enlargement)

Drift Report

Wellbore DRIFT Interpretation

PREPARED ESPECIALLY FOR

FLORENCE COPPER

R-06

Tuesday - March 27, 2018

Southwest Exploration Services, LLC
borehole geophysics and video services

Southwest Exploration Services, LLC
(480) 926-4558

WELLBORE DRIFT INTERPRETATION

Southwest Exploration Services, LLC

(480) 926-4558

Company: FLORENCE COPPER **Well Owner:**

County: PINAL **State:** ARIZONA **Country:** USA

Well Number: R-06 **Survey Date:** Tuesday - March 27, 2018 **Magnetic Declination:** Declination Correction Not Used

Field: FLORENCE COPPER **Drift Calculation Methodology:** Balanced Tangential Method

Location:

Remarks:

Witness: COLLIN - H&A **Vehicle No.:** 900 **Invoice No.:** **Operator:** A. OLSON **Well Depth:** 1200 Feet **Casing size:** 12.25 Inches

Tool: Compass - 142201 **Lat.:** **Long.:** **Sec.:** **Twp.:** **Rge.:**

MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BGR., degrees
500	0.20	003.30	500.00						
520	0.30	157.30	519.99	-0.013	0.022	0.95	6.82	0.03' (.36")	121.20
540	0.40	098.50	539.98	-0.072	0.111	0.18	3.44	0.13' (1.56")	122.80
560	0.20	070.20	559.97	-0.070	0.213	0.37	1.71	0.22' (2.64")	108.30
580	0.20	062.50	579.96	-0.042	0.277	0.20	0.47	0.28' (3.36")	098.60
600	0.30	074.90	599.95	-0.012	0.359	0.94	0.76	0.36' (4.32")	092.00
620	0.10	124.30	619.94	-0.008	0.424	1.00	2.93	0.42' (5.04")	091.10
640	0.20	185.00	639.93	-0.053	0.435	0.58	3.54	0.44' (5.28")	096.90
660	0.30	138.40	659.92	-0.127	0.467	0.98	2.77	0.48' (5.76")	105.20
680	0.30	142.60	679.91	-0.208	0.534	0.99	0.26	0.57' (6.84")	111.30
700	0.50	118.10	699.90	-0.291	0.643	0.55	1.49	0.71' (8.52")	114.30
720	0.50	108.10	719.89	-0.359	0.803	0.99	0.61	0.88' (10.56")	114.10
740	0.60	095.10	739.88	-0.395	0.990	0.90	0.79	1.07' (12.84")	111.80
760	0.60	111.90	759.87	-0.443	1.191	0.33	1.02	1.27' (15.24")	110.40
780	0.60	098.80	779.86	-0.498	1.392	0.22	0.80	1.48' (17.76")	109.70
800	0.30	064.60	799.85	-0.492	1.543	0.36	2.06	1.62' (19.44")	107.70
820	0.40	102.60	819.84	-0.485	1.658	0.86	2.28	1.73' (20.76")	106.30
840	0.30	143.30	839.83	-0.542	1.757	0.96	2.43	1.84' (22.08")	107.10

True Vertical Depth: 1199.66' **Final Drift Distance:** 6.43' (77.16") **Final Drift Bearing:** 121.10°

Note: Magnetic Declination is not used because it is not a factor in the calculation of well drift or alignment. Magnetic Declination is only important if attempting to hit a target or miss another well and then it is included in the calculations.

WELLBORE DRIFT INTERPRETATION

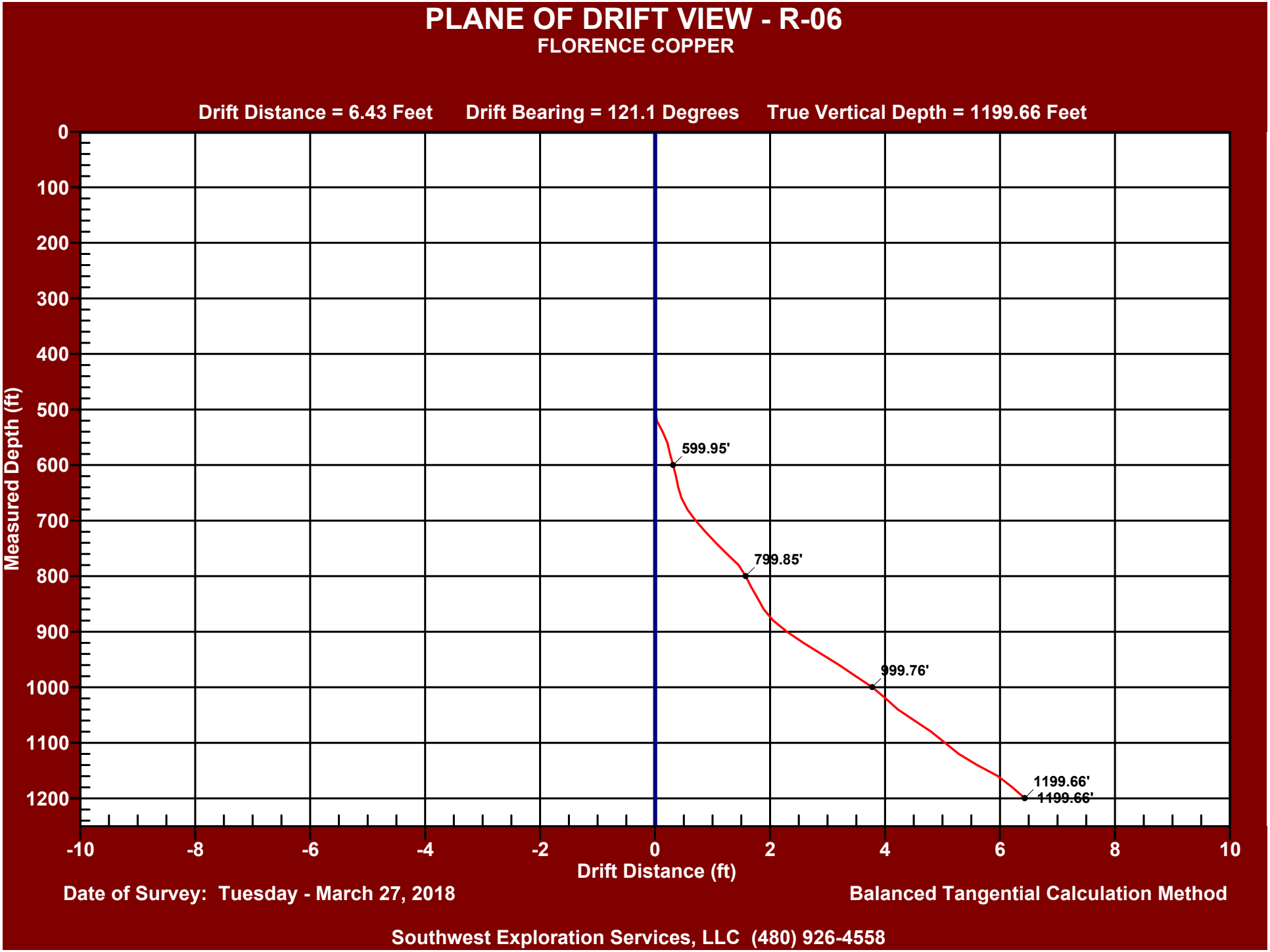
Southwest Exploration Services, LLC

R-06

(480) 926-4558

MEASURED DATA			DATA COMPUTATIONS						
DEPTHS, feet	INCLINATIONS, degrees	AZIMUTHS, degrees	TVD, feet	T. LATITUDE, feet	T. LONGITUDE, feet	DOGLEG SEV., degrees per 20 Feet	DOGLEG SEV., degrees per 100 feet	DRIFT DIST., feet	DRIFT BRG., degrees
860	0.40°	149.30°	859.82	-0.644	1.824	0.40	0.37	1.93' (23.16")	109.40
880	0.60°	135.30°	879.81	-0.778	1.933	1.00	0.85	2.08' (24.96")	111.90
900	0.80°	128.80°	899.80	-0.940	2.115	1.00	0.40	2.31' (27.72")	114.00
920	0.80°	120.00°	919.79	-1.097	2.345	0.32	0.54	2.59' (31.08")	115.10
940	1.00°	125.70°	939.78	-1.269	2.608	0.92	0.35	2.90' (34.80")	115.90
960	0.80°	125.70°	959.77	-1.452	2.863	0.74	0.01	3.21' (38.52")	116.90
980	0.80°	129.00°	979.76	-1.621	3.085	0.58	0.20	3.49' (41.88")	117.70
1,000	0.90°	126.40°	999.76	-1.802	3.320	0.06	0.16	3.78' (45.36")	118.50
1,020	0.50°	139.90°	1,019.75	-1.962	3.503	0.60	0.82	4.01' (48.12")	119.30
1,040	0.70°	129.00°	1,039.74	-2.106	3.654	0.68	0.66	4.22' (50.64")	120.00
1,060	1.00°	123.10°	1,059.73	-2.278	3.895	0.84	0.36	4.51' (54.12")	120.30
1,080	0.70°	144.50°	1,079.72	-2.473	4.112	0.11	1.30	4.80' (57.60")	121.00
1,100	0.80°	145.50°	1,099.71	-2.688	4.262	0.94	0.06	5.04' (60.48")	122.20
1,120	0.70°	106.60°	1,119.70	-2.838	4.458	0.92	2.33	5.28' (63.36")	122.50
1,140	1.20°	106.80°	1,139.69	-2.933	4.776	0.01	0.03	5.60' (67.20")	121.60
1,160	0.90°	101.50°	1,159.68	-3.025	5.130	0.72	0.32	5.96' (71.52")	120.50
1,180	0.70°	152.50°	1,179.67	-3.165	5.340	0.46	3.01	6.21' (74.52")	120.70
1,200	0.70°	111.50°	1,199.66	-3.318	5.510	0.84	2.45	6.43' (77.16")	121.10

Page No. 2 **True Vertical Depth: 1199.66'** **Final Drift Distance: 6.43' (77.16")** **Final Drift Bearing: 121.10°**

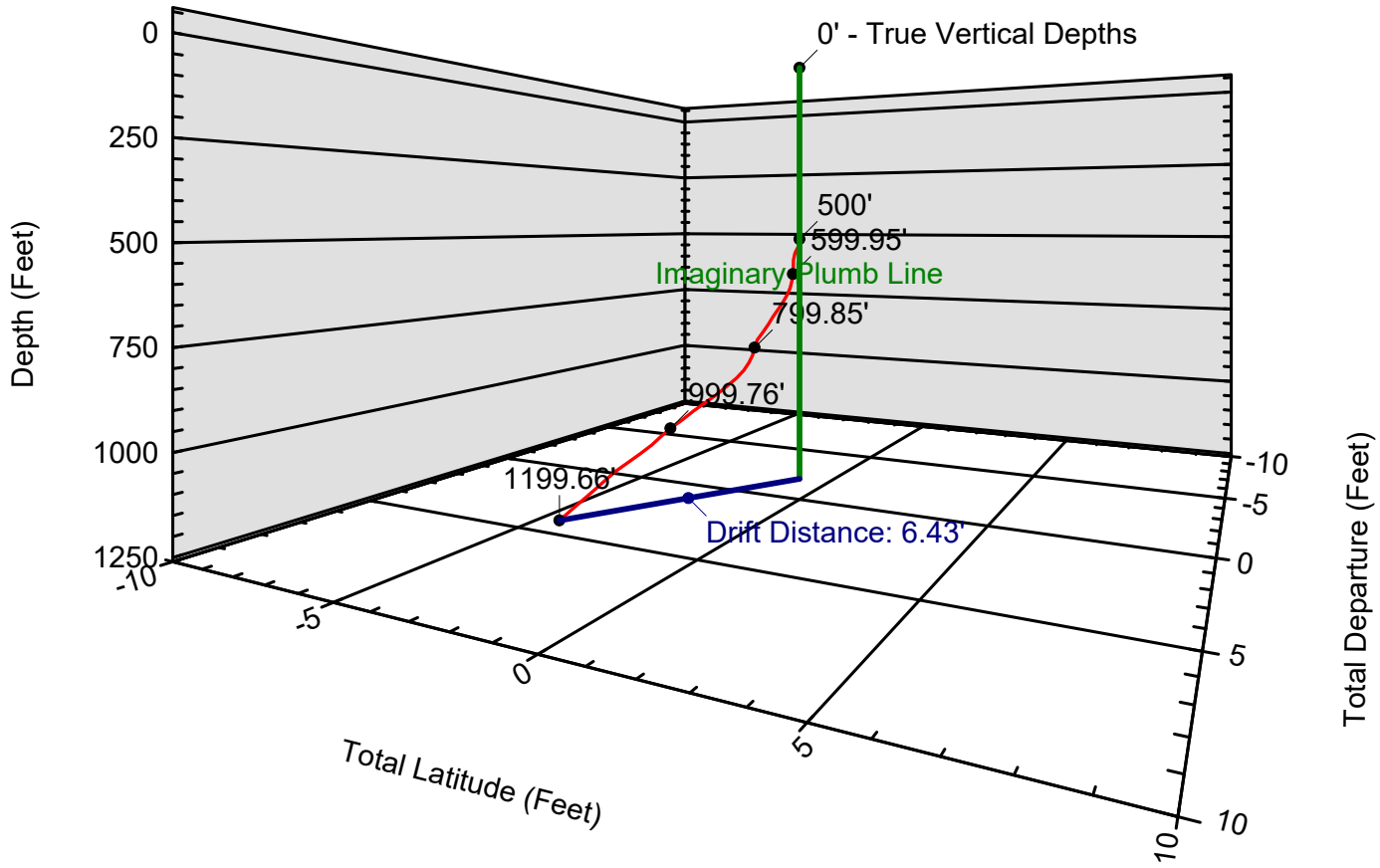

PLANE OF DRIFT VIEW - R-06
FLORENCE COPPER
Drift Distance = 6.43 Feet
Drift Bearing = 121.1 Degrees
True Vertical Depth = 1199.66 Feet
Measured Depth (ft)
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
599.95'
799.85'
999.76'
1199.66'
1199.66'
-10
-8
-6
-4
-2
0
2
4
6
8
10
Drift Distance (ft)
Date of Survey: Tuesday - March 27, 2018
Balanced Tangential Calculation Method
Southwest Exploration Services, LLC (480) 926-4558

3D PROJECTION VIEW - R-06

FLORENCE COPPER

Drift Distance = 6.43 Feet Drift Bearing = 121.1 Degrees True Vertical Depth = 1199.66 Feet

296.0



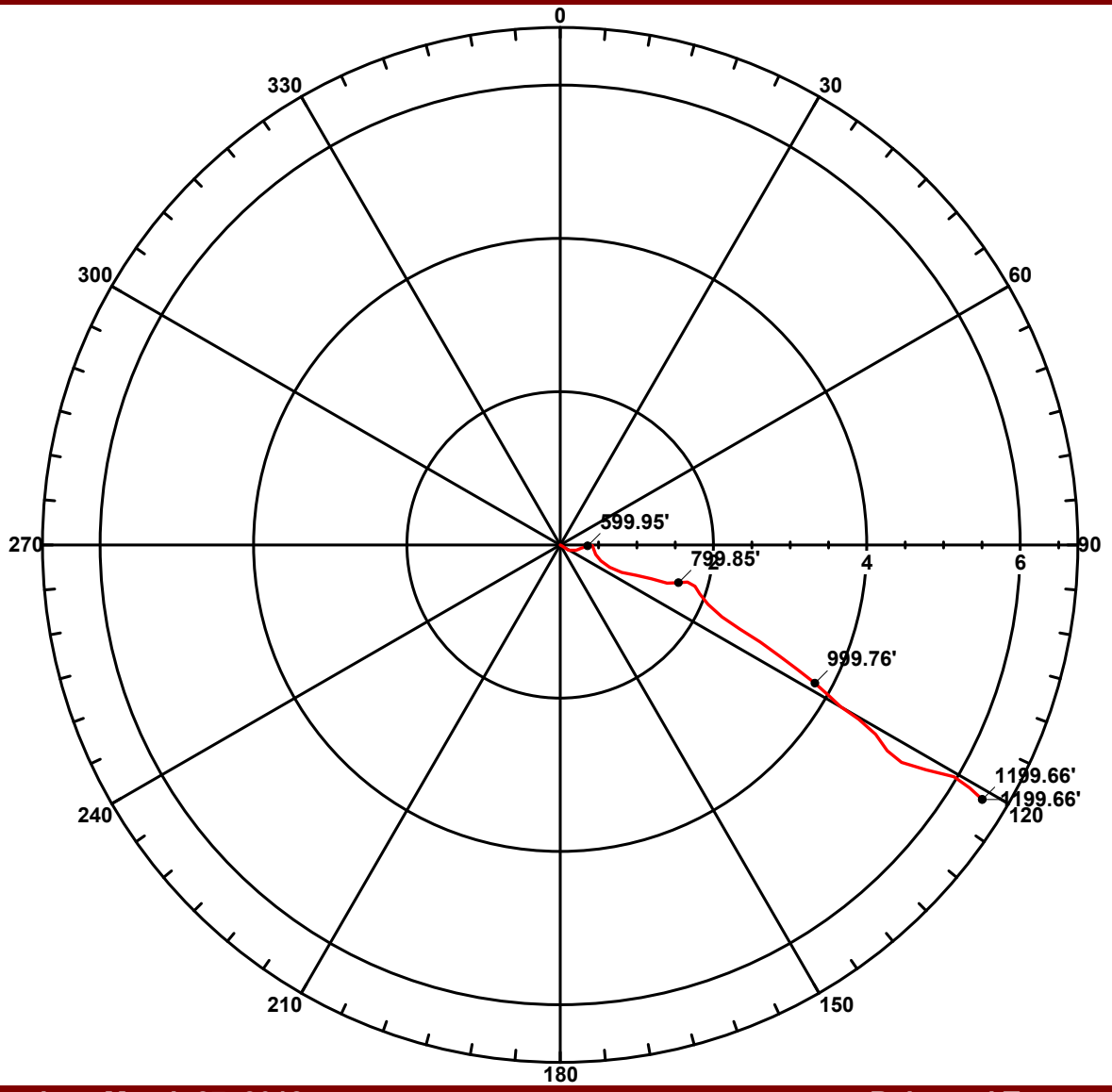
Date of Survey: Tuesday - March 27, 2018 **Balanced Tangential Calculation Method**

Southwest Exploration Services, LLC (480) 926-4558

POLAR VIEW - R-06

FLORENCE COPPER

Drift Distance = 6.43 Feet **Drift Bearing = 121.1 Degrees** **True Vertical Depth = 1199.66 Feet**



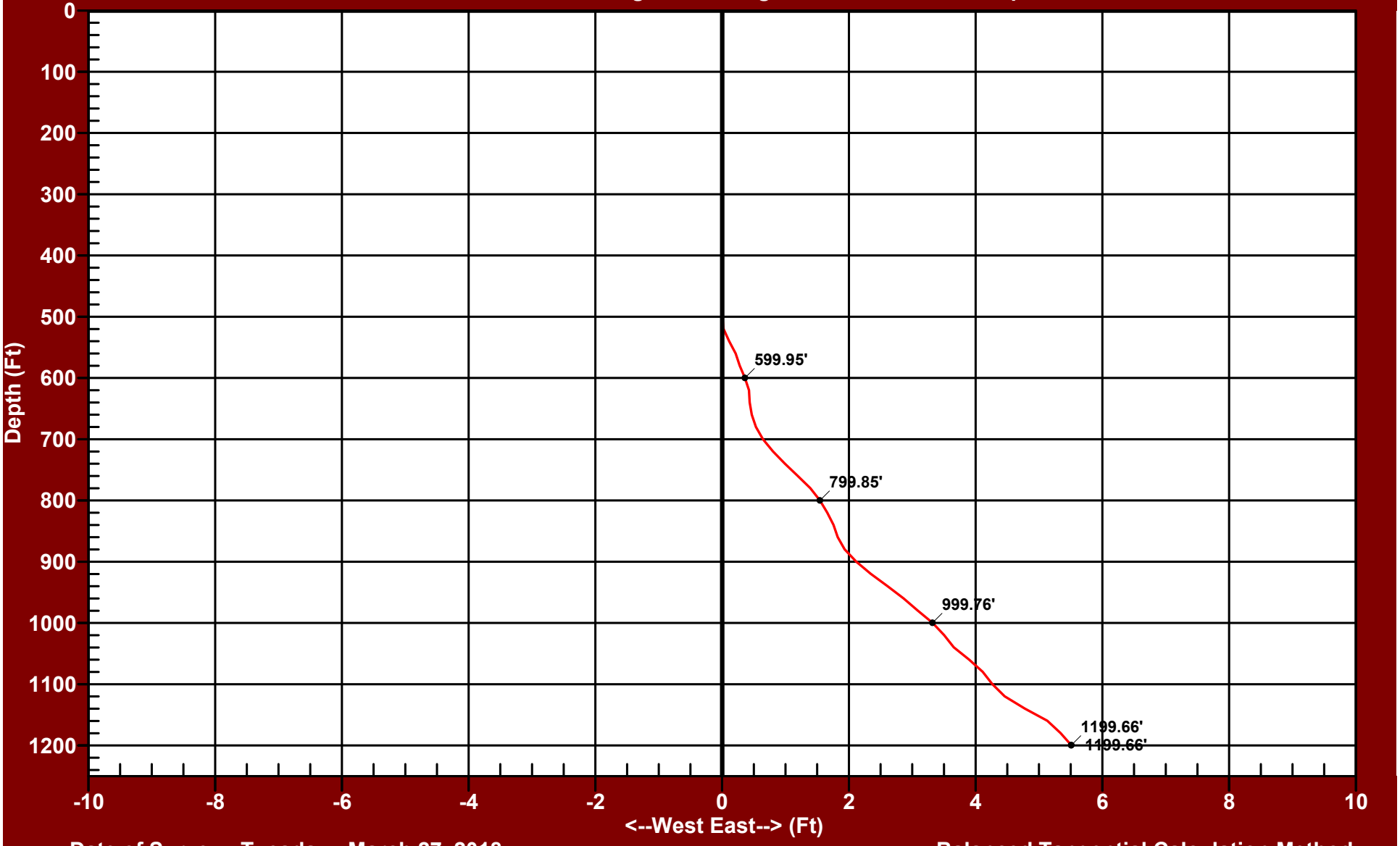
Date of Survey: Tuesday - March 27, 2018 **Balanced Tangential Calculation Method**

Southwest Exploration Services, LLC (480) 926-4558

EASTING RECTANGULAR VIEW - R-06

FLORENCE COPPER

Drift Distance = 6.43 Feet Drift Bearing = 121.1 Degrees True Vertical Depth = 1199.66 Feet



Date of Survey: Tuesday - March 27, 2018

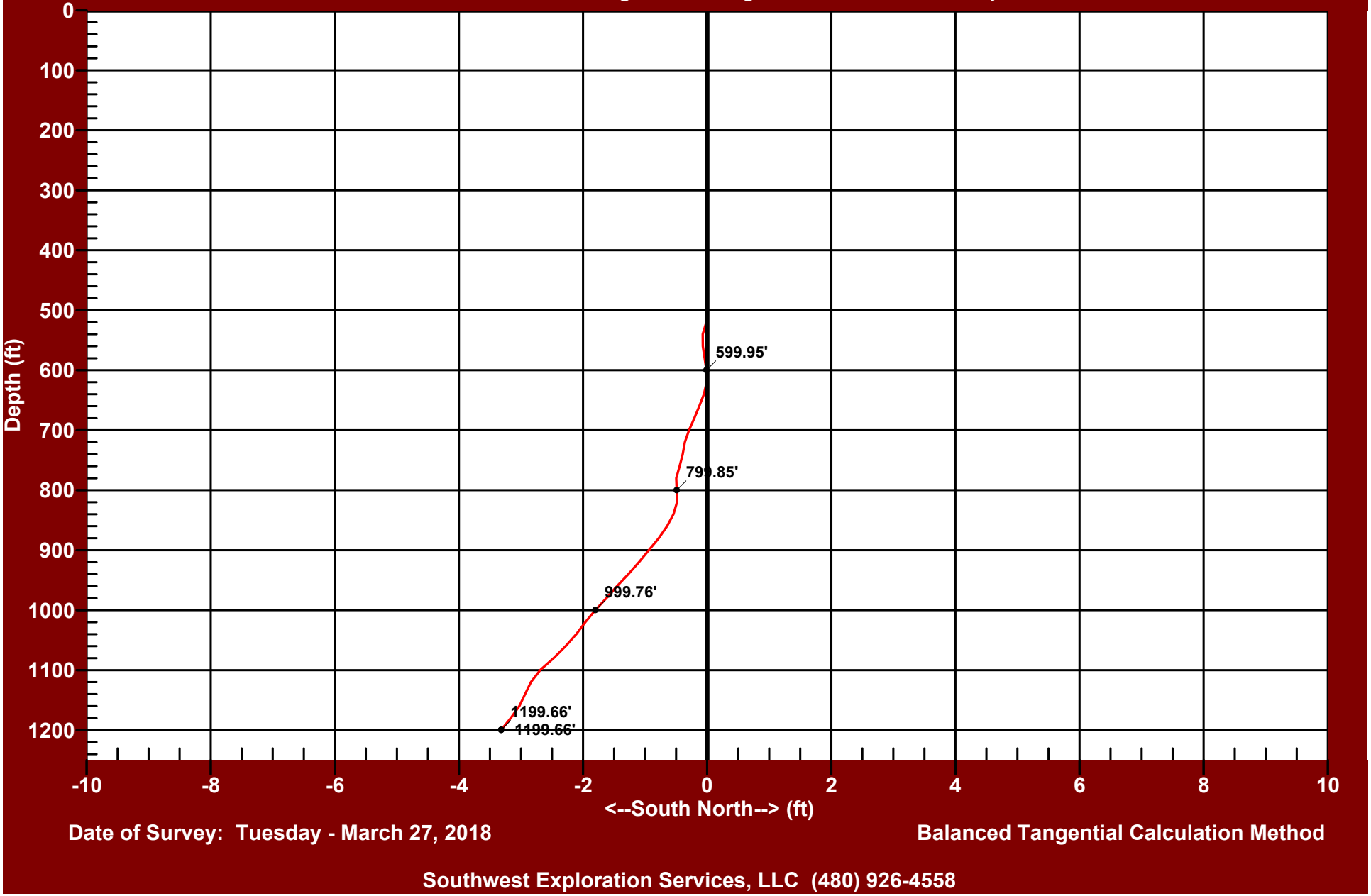
Balanced Tangential Calculation Method

Southwest Exploration Services, LLC (480) 926-4558

NORTHING RECTANGULAR VIEW - R-06

FLORENCE COPPER

Drift Distance = 6.43 Feet Drift Bearing = 121.1 Degrees True Vertical Depth = 1199.66 Feet



Date of Survey: Tuesday - March 27, 2018

Balanced Tangential Calculation Method

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